

MAIL CALL! THE ULTIMATE E-MAIL SURVIVAL GUIDE

**ZAP SPAM, TAME YOUR MAILBOXES, AND
CHOOSE THE PERFECT PROGRAM, p. 64**

Macworld

The Mac Product Experts www.macworld.com | October 2004

Apple's Dynamic Duo



AIRPORT EXPRESS

**Play Your iTunes Library
on Your Stereo, Expand Your
Network, and More, p. 82**

CLICK WHEEL IPODS

**The Portable Music Player
That Changed the World
Just Got Better, p. 58**

DIGITAL HUB PHOTOGRAPHING INFRARED LIGHT, p. 78



The best just got better. With Apple's innovative new Click Wheel, Shuffle Songs at your

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The iPod. Remixed.

fingertips, up to 12-hour battery life; and now 20GB for just \$299. PC and Mac:  **iPod**

Macworld

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The Virtual CD

Subscribers now have free access to the contents of the CD-ROM that comes with newsstand copies of *Macworld*. To view the contents of the CD, go to the following URL (broadband Internet recommended):

<http://cd.macworld.com/2004/10/tie-orange>

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On the Cover
Photograph by
Peter Belanger

COVER STORY

58 Rock and Scroll

JONATHAN SEFF

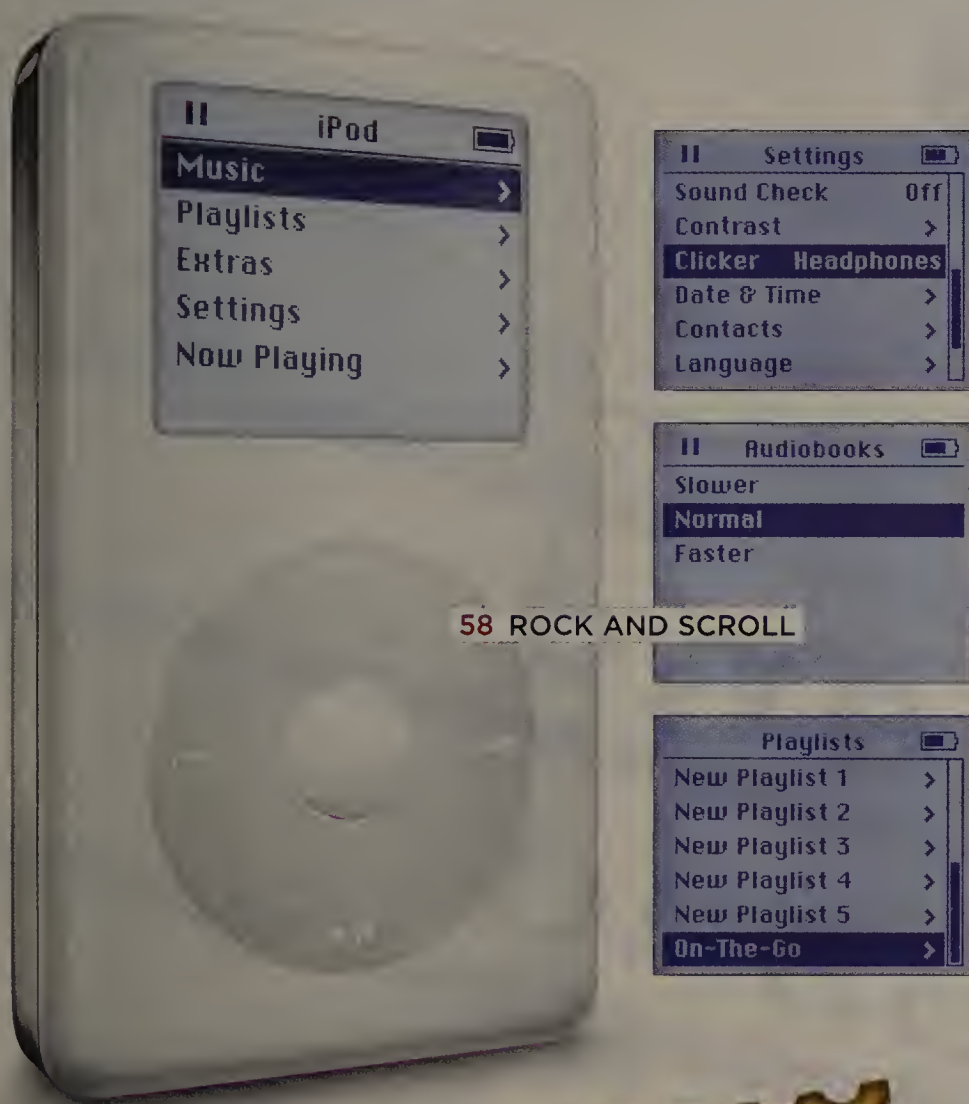
Take a closer look at Apple's fourth-generation iPods, from the new Click Wheel on the outside to the new software on the inside. Plus, see how they measure up: *Macworld* reviews the latest models.

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CHRISTOPHER BREEN AND JOE KISSELL

Overrun by e-mails? The problem may be your e-mail program. We'll show you how to find the best software for your e-mail personality, take charge of your in-box, and squash annoying spam.



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TERRI STONE AND JENNIFER WILLS

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Put Apple's new wireless base station to work, at home or on the road.

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Mac OS X Hints

ROB GRIFFITHS

Use Exposé to work in a particular window, find corrupted preference files, disable some of iChat AV's emoticons, modify Mozilla's and Firefox's tab behavior, and send Terminal output directly to TextEdit.

88 Mac 911

CHRISTOPHER BREEN

You ask the questions, and our expert doles out the answers. This month, learn how to use Microsoft Word more efficiently, when to install Panther during an upgrade, what to do with mysterious file extensions, why iTunes can't identify duplicate songs, and more.

BACK PAGE

116 Hot Stuff

Check out our editors' favorite developments of the month.

Randy likes the feel of **Sand**.

The image features a woman sitting on a beach, working on a laptop. Overlaid on the bottom half of the image is a large, stylized graphic of the Extensis Suitcase X1 font manager interface. The interface includes a list of fonts on the left, a preview window on the right, and various control buttons and labels.

Font List (Left):

- Catalog
- Digital Fonts
- Anisette-Black.bmap
- Exocet Light.t1
- Lunatic.t1
- Magneto.t1
- Matrix.t1
- Schmutz ICG Corroded
- New DM Campaign
- Packaging
- Project 23-19
- Sans Sand
- Spring Brochure

Preview Window (Right):

- QuickType™
- point size: 48
- Sand
- Blur
- GoodDog Cool
- Saïd
- 7677 item(s)

Buttons and Labels:

- Remove
- Activate
- Deactivate
- Keywords
- Quick Find
- Suitcase

Suitcase X1 | www.extensis.com/X1

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The Ratings Game

When you bill yourself as “The Mac Product Experts,” you’d best be prepared to prove it—every month, in our case. Or, to paraphrase the mission statement of occasional photojournalist Peter Parker, with great claims comes great responsibility. When a new product arrives for our review, we’ve got to make sure that our testing dots every *i*, crosses every *t*, and double-checks every feature.

But our readers don’t just expect accuracy—they also want speed, especially in the Internet era. After all, in an age where instant information is just a click away, even the most thorough product review isn’t very valuable if you have to wait around forever for it to appear.

That’s the balancing act we have to perform every month—we have to be *fast*, but we also have to be *right*. And we faced that conflict head-on this month, when it came time to evaluate Apple’s fourth-generation iPods (see “Rock and Scroll,” page 58).

What’s the Buzz

The new iPods arrived a little less than a month before this issue went to press. So I spent a long weekend putting a 40GB model through its paces to turn around a review that could appear both in print and online. But just as we were putting the finishing touches on our articles, reports began circulating on the Internet that some new iPods gave off a strange buzzing noise through the headphone port—especially when their hard drives activated to load more music into the iPod’s memory.

Most of the iPods we bought for testing sounded fine. But Senior Editor Jonathan Seff did hear the buzzing sounds from his 40GB iPod, through his headphones. So what were we to do? Soldier on with our mostly positive review, or write a bad review based on a quirk that seemed to exist only on some iPods?

We decided to report the issues some people were having with their iPods, but not to change the overall tone of our review. Every mass-produced product is going to have its share of lemons; if the share is relatively high, that’s a fact we can’t ignore (which happened when we reviewed the original 15-inch aluminum PowerBook G4 in December 2003). But if we were to give every product a terrible review because a few of the models that rolled off the assembly line were broken, we would wind up giving *every* product a terrible review.

Reliable Sources

In our iPod review, we concluded that if you get a normal fourth-generation iPod—and all but one of the ones we examined fit this category—you’re

going to have a good experience. (As for Jonathan Seff, he went, incognito, to an Apple Store with his buzzing iPod and reported the problem. An Apple Genius took a listen, agreed that there was an issue, and immediately offered him a replacement. You can read about Jonathan’s iPod odyssey at find.macworld.com/0055.)

Sadly, it’s impossible for us to get a clear idea of how reliable a product will be in the long term. So if we see major flaws in a large enough sample, as we did with the PowerBook G4s, we’ll write about it and rate the products accordingly. If we don’t, we’ll assume that the product we tested is typical of most of its kind.

But *Macworld* is committed to finding a way to better track the reliability of Mac hardware products—not only those from Apple, but also those from the companies that make the printers, cameras, and other hardware you buy. It’s a tough undertaking, and I can’t promise that we’re going to figure out how to do it overnight. But filling in that missing piece of the product-review puzzle is something we’ve got to do if we want to be known as the Mac Product Experts. □

How do you use product reviews? How do you measure a product’s reliability? Share your opinions with me, at jason_snell@macworld.com or at www.macworld.com/forums.

About This Macworld

We’ll admit it—a few *Macworld* readers have griped about the volume of iPod coverage in *Macworld*. (If you’re one of them, avert your eyes from this month’s cover.) “If you love the iPod so much,” more than one reader demanded, “why don’t you give it its own magazine?” So we did. Introducing *Playlist*, a special issue devoted entirely to digital music. *Playlist* features cool iPod accessories, lots of iTunes tips, and plenty of stuff about music itself. To get your copy, visit your local newsstand, call 800/288-6848, or visit our brand-new digital-music Web site: www.playlistmag.com.




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Not to worry. The three husky guys are still around.



Jeannie enthusiastically demonstrates Elevate™, our new electric lift table.



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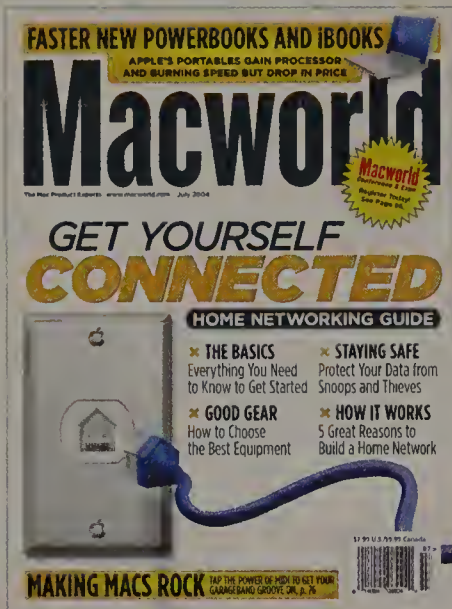


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FEEDBACK

Mail Call

You might think that putting a topic like home networking on the cover of your magazine—as we did with our July 2004 issue—would earn you nothing but glassy-eyed stares and an empty mailbox. But we weren't worried. We know that *Macworld* readers can get just as fired up about Powerline devices as they can about PowerBook reviews. When readers are as passionate and well informed about technology as ours are, an empty mailbox is one thing you never have to worry about. □

Network News

PAUL ROTHROCK

I enjoyed "Get Connected" (July 2004), but, having just completed a similar project, I think you omitted a couple of potentially useful points. You didn't show users how to make their own Ethernet cables. This is much less expensive than buying premade cables, takes little technical savvy, and saves a lot of hassle because you can make the cables as long or as short as you need. Also, you didn't talk about using access-point antennas to extend the range of an AirPort Base Station. This is an excellent way to expand the area of reception without mucking about inside the case of your PowerBook, something that most people don't want to do. And you didn't cover hiding the network equipment. I put mine between the joists in my basement, behind the drop ceiling. This gives me easy access and keeps the equipment out of sight.

JOEY BENTLEY

The day before your July 2004 issue arrived, a few coworkers and I were discussing networks. I mentioned that I wanted to set up my computers at home on a wireless or Ethernet network. I just wanted to thank you all for the perfect timing and for the helpful information. The only thing I noticed is that you didn't mention anything about what would be involved with hooking up a Mac and a PC on the same network.

LARRY HERZBERG

The "Where to Buy" chart indicates that D-Link does not make Mac-compatible Powerline networking products. But D-Link's Web site seems to indicate the opposite—at least if you take "operating system independent" to imply "Mac compatible." Am I missing something here?

It's true that D-Link and a few other companies sell Powerline adapters that will work on a network that includes Macs, but we didn't include them in our chart because you must have a Windows machine to set up their security features.—Ed.

Assaulting Batteries

MD ZUTECK

Thanks for including some comparative battery run times in Henry Norr's PowerBook review (July 2004). Sadly, the data shows that Apple just doesn't get the real needs of road warriors. If you can't get to a power source, how long a laptop runs has much more bearing on how much you can get done than how fast the machine runs, especially if you're mostly reading or writing.

Missing Notes

SCOTT YOHO (FINALE PRODUCT SPECIALIST, MAKEMUSIC)

Thank you for your review of Finale 2004 (July 2004). While Peter Kirn mentioned that you can specify a pulse after you record a MIDI performance in Finale, it may be helpful to note that you can also tap in a tempo (steady or changing) while you play (using the sustain pedal, for example). Finale 2004c for Macintosh, which is a free update for owners of Finale 2004, can now be downloaded from our Web site. It offers EPS export and the ability to compile PostScript listings directly from Finale's File menu—two cons cited in the review. (To be clear, all versions of Finale 2004 for Mac were able to compile PostScript listings via printing to file and specifying PostScript as the format.) We also wish you had mentioned Finale's ability to create SmartMusic files that utilize all SmartMusic features.

Quiet Quicken?

DUANE BUSCH

The letter from Quicken Mac Product Manager Aruna Harder rubbed me the wrong way (*Feedback*, July 2004). I'm glad to see that Intuit followed up on the bug that *Macworld* brought to its attention. But what about the bugs—the inability to correctly calculate the ROI in Portfolio view, the incorrect cost basis after a stock split, the incorrect display of the number of securities held in an account—that I have reported on Quicken's Web site?

The Driving's the Thing

ROY GILKIN

Regarding the Rally Shift review in *The Game Room* (July 2004): It appears that Peter Cohen has failed to grasp that driving games are for driving. In this, Rally Shift is exemplary. I am a former racer and can vouch that Rally Shift drives very much like the real thing. Damage modeling and pretty landscapes are for poseurs. That this is shareware and not the effort of a major game publisher makes it particularly praiseworthy.

Volunteering Thanks

JOHN PARASCAK

Since being volunteered as the network administrator/computer guy at our small company, I've been looking for good information about networking, server setup, configuring firewalls, and so forth, but I hadn't found step-by-step, easy-to-understand information—especially from a Mac perspective—like the kind Mark H. Anbinder provided in "Put Panther on Your Server" (*Hands On*, July 2004). I bet there are a lot of volunteered Mac administrators out there who, like me, enjoy the

challenge and fun of putting together a useful network but don't have the time to get a computer degree. As long as people like Mark keep writing articles, we volunteered Mac administrators may actually have enough time to get our regular jobs done.

DAVID MARSHALL

One small objection: Mark H. Anbinder suggests that you "use a tool like the free GraphicConverter" to create warning images. GraphicConverter, from Lemke Software (www.lemkesoft.de), is shareware (\$35; download, \$30).

I Want My MP3s!

RANDY HAMPTON

"Not the Same Old Song-and-Dance" (*Mac Beat*, July 2004) listed iTunes 4.5's supposed improvements. But like Apple, the article failed to mention that the principal change is iTunes 4.5's inability to convert iTunes-purchased AAC files into MP3s. Like lots of people, I like to put the

songs I've legitimately purchased on my MP3 player, which is not compatible with AAC. I understand why Apple feels compelled to make AAC files hard to liberate. But to put out cryptic "improvements" that are not mentioned and make legitimately purchased music impossible to use with legitimately purchased audio devices sends an unfortunate, self-amplifying, and adversarial message of distrust to an incredibly loyal and dedicated group of customers.

Print Shop in Business

JOE PALLAVICINI

The Print Shop is a nice program (★★★★; June 2004), but it does have one problem. I installed it in OS X, and when I tried to make Name Tags, I couldn't bring up the Name List. In desperation I installed The Print Shop in OS 9.2, and then I was able to bring up the Name List.

If you're using a predesigned template, delete the Name Here text box. Then create a new text box, delete the automatic placeholder text, and

go to Insert: Address Field. Choose First Name. If necessary, go to the menu again and choose Last Name. When you print the document, choose Mail Merge from the Print window, and select the list of names you want to use.—Ed.

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CORRECTIONS

The screenshot on page 89 of the August issue ("Hasta la Vista, Aqua," Geek Factor) was improperly credited. Ryan Bliss of Digital Blasphemy (www.digitalblasphemy.com) created the shot.

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WHAT'S NEW

WHAT'S IN THE PIPELINE

WHAT'S HOT

APPLE HAS TO WALK A FINE LINE WITH OS UPDATES

Developer Two-Step

The whispers began practically the moment Steve Jobs wrapped up his preview of Tiger at June's Worldwide Developers Conference (WWDC). Dashboard, one of the new features Jobs showed off during this look at the upcoming OS X update, is a Mac-interface layer for controlling miniature Javascript-based programs such as a calculator, an iTunes controller, and a calendar.

Dashboard also bears an uncanny resemblance to Konfabulator, a program from third-party developers Arlo Rose and Perry Clarke. And that's where the controversy lies.

To Rose and Clarke, the similarities of their Konfabulator and Apple's Dashboard—from the interface and functionality to the

use of the term *widgets* to describe the mini-applications—are too close to make Dashboard anything other than a blatant copy. "Why would a company tick off a developer whose whole purpose is to try to get more people to come to this company's platform by doing cool things?" Rose asks. "If this is what they do with the products they think are the best, then why would anyone have any reason to develop more cool stuff? I certainly don't."

Apple declined to comment for this story. However, in the wake of WWDC, the company stressed that Dashboard is its own creation and that widgets have long been a part of both Mac OS X and the NextStep OS.

The dispute between Apple and Konfabulator's makers is hardly the first time a third-party developer has butted heads with the creator of an operating system. But it is the latest incident to illustrate the fine line Apple has to walk: between extending the functionality of OS X and alienating third-



Virtual PC Update Adds G5 Support

party developers with the updates it introduces. With major OS updates now routinely adding more than 150 features and enhancements, Apple is bound to step on a few toes.

"This is not a new phenomenon," says Michael Gartenberg, vice president and research director of Jupiter Research. "OS vendors have clearly shown that one of the ways they extend the functionality of their systems is by incorporating things that might have been stand-alone features."

The Way We Were

To put it another way, what's part of Mac OS today didn't necessarily get its start there. For example, Mac users these days wouldn't think twice about burning a CD or compressing a file from the Finder. Those functions are integrated into OS X. But it wasn't too long ago that either task would have been impossible without software from Roxio or Aladdin Systems (now known as Allume), for instance.

What criteria do Apple use when determining what outside functionality to add to its OS? In some cases, it comes down to adding features that aren't widely available or simply improving functionality. For example, when Apple introduced OS X, there were almost no native applications. By integrating Mail into the OS, Apple allowed users to send and receive e-mail without having to enter Classic mode.

In other cases, Apple adopts features that improve the ease of use of its operating system. Think back to System 7.5 and its introduction of built-in TCP/IP stacks (what your computer uses to dial the Internet and to transfer data with other computers). "Apple was the first vendor to include a TCP/IP stack," Gartenberg says. "Before Apple did that, there were lots of TCP/IP vendors." These days, consumers would balk at bringing home a computer that didn't include built-in networking and Internet software.

The impact of these moves on developers can vary. The presence of Mail in OS X hasn't stopped developers, including Qualcomm, Microsoft, and Bare Bones Software, from continuing to update their own OS X-compatible e-mail clients. In fact, Bare Bones CEO Rich Siegel is sanguine about bundled software—Bare Bones' Mailsmith, TextWrangler, and Super Get Info all pick up where Apple's bundled products leave off—noting that

it can create an opportunity for vendors in niche markets.

"The fact that the OS vendor includes the same sort of product isn't a problem for us," says Siegel, who notes that even if 90 percent of Mac users stick with Apple's Mail, "that leaves 10 percent of the customer base that wants something different. And that's still a huge number of people."

The effect of integrating TCP/IP stacks into Mac OS was more dramatic; once Mac users no longer needed to buy third-party applications such as Mac-TCP, the makers of those products essentially disappeared.

Then there's the case of Karelia Software and its Web-search tool Watson. When Apple released OS X 10.2 in 2002, it came with an updated Sherlock application that had many of the same functions as Watson. The third-party program endured another two years by trying to outdo Sherlock, with features such as a reference library; a zip code finder; package tracking; fully supported weather, Amazon.com, and Google searching; and a faster, more customizable interface. But Karelia will cease to develop or support Watson. In July, Karelia sold Watson's technology to Sun Microsystems.

Opportunity Knocks

So for a company like Apple, where does improving its OS end and squeezing developers begin? "The notion of Desk Accessories was invented by Apple," Gartenberg says, speaking about Konfabulator. "The fact that Apple is refining this again as a part of Tiger should not be surprising."

Rose doesn't disagree that Desk Accessories may have come first, but notes a crucial difference between that classic Mac feature and Konfabulator. Unlike predecessors, Konfabulator lets users create accessories—and so does Dashboard.

Regardless of who's right, there's no getting around the fact that if Apple adopts the functionality of an outside app into its OS, developers are going to feel the squeeze. However, there are instances where Apple's entry into one area has opened up opportunities for software makers elsewhere. Gartenberg concludes that this is a natural evolution of the marketplace.—MATHEW HONAN
(Jim Dalrymple contributed to this report.)

Virtual PC didn't exactly get off to an auspicious start as part of Microsoft's product line. A few months after buying the emulation program from Connectix, Microsoft (www.microsoft.com) announced that the software, which allows the Mac to emulate PC hardware, was incompatible with the Power Mac G5 (see "VPC DOA?" *Mac Beat*, November 2003). Microsoft hopes things go more smoothly with Virtual PC 7, the first major Virtual PC release the software giant has overseen. Version 7 features long-awaited G5 support and other improvements aimed at enhancing usability.

Why the delay in adding G5 compatibility? For reasons of speed, the old version of the application made some processor-related assumptions that weren't valid for the G5 chip. Making up for lost speed, Microsoft has tweaked the new version to show 15 percent increases across the board, regardless of the system being used. Virtual PC 7 also uses the OpenGL graphics technology in Mac OS X to speed up scrolling, redrawing, and other interface-related activities. And G5 users will see improvements in disk-intensive tasks such as copying files.

Virtual PC 7 uses the familiar Apple installer instead of the drag-and-drop installation of earlier versions, so it's easier to assign more RAM to your virtual OS; the update also offers better setup assistance. In addition, version 7 enters Stand By mode by default, rather than shutting down; this saves time when you return to your virtual environment. For printing, the new Virtual PC can send a PostScript file to your Mac printer driver, which then converts that file to PDF before printing it. Since Mac OS is doing most of the work, printing should be faster and more accurate.

The first two versions of Virtual PC 7, featuring the Windows XP Professional (\$249) or Windows XP Home (\$219) operating systems, should ship in October. Expect a \$99 upgrade and a \$129 version without an OS in November. And a \$249 Windows 2000 Professional version should follow in December.—JONATHAN SEFF



BMW, ALPINE INTEGRATE APPLE MUSIC PLAYER INTO CARS

The iPod's Open Road

The way carmakers are acting these days, you'd think iPods were as essential to your ride as four tires and a full tank of gas.

Sound like an exaggeration? Consider all the carmakers and parts suppliers jumping on the iPod bandwagon. BMW already gives you the option of incorporating iPods directly into your car's sound system. And a new product from audio

cutting-edge company in its business. So it's a perfect fit," says BMW spokesman Dave Buchko. BMW plans to integrate the iPod Adapter option into its Mini Cooper model this year, with the goal of eventually offering it across the entire BMW line.

BMW isn't the only car company cashing in on iPod mania. In August, the car company Jaguar gave away a limited-edition black iPod in a contest promoting its X-Type car. Last year, Volkswagen offered an iPod and a connectivity kit for \$600 to Beetle drivers in the United States.

If you don't drive a Beemer, help is on the way, in the form of Alpine's KCA-420i (pictured). Set to arrive in September, the \$100 interface box will let you control your iPod from your stereo's front panel or remote control if your car is equipped with Alpine-made head units with an Ai-Net system bus. Alpine vice president of brand marketing

Steve Witt says this won't be the last iPod product Alpine will offer. "We are planning an iPod-integration road map for the next four to five years," he adds.

It's no surprise to Apple that carmakers are clamoring to add iPod compatibility. "[It's] a natural extension of what the iPod is meant to be," says Stan Ng, Apple's director of iPod product marketing. "It's meant to be used in multiple environments—in your home hooked up to your stereo system, at the gym, or in your car."

And that could expand to many more cars in the near future. Apple is talking to other car companies—so your next road trip could come with its own built-in soundtrack.—ADELIA CELLINI



company Alpine will soon let even more of you hit the open road with your iPod connected to your car stereo.

BMW's iPod Adapter—a \$149 (plus installation) option for 2002 and later models of the BMW 3 Series, Z4 Roadster, and X3 and X5 Sports Activity Vehicles—is the highest-profile iPod-auto combination. The adapter runs through the glove box; one end plugs into the car's sound system, and the other end hooks up to the dock connector of an iPod or a mini. Drivers control track selection and volume from the dashboard audio controls or from controls on the steering wheel.

"We consider ourselves a cutting-edge car company, and we believe Apple is a

Dialing for iTunes

Carmakers may be clamoring to find ways for you to hit the road with your iTunes library. But if Apple and Motorola have their way, sometime in 2005, iTunes music will be just a cell phone away.

Apple is teaming up with the cell-phone maker to create an iTunes mobile music player that will come standard on all of Motorola's mass-market phones. The iTunes-enabled mobile phone should be ready during the first half of 2005.

For now, details—such as just how many songs the phones will hold—remain sketchy, though Apple executives estimate the total should be in the dozens. "This isn't meant to be a replacement for the iPod," says Eddy Cue, Apple's vice president of applications.—JIM DALRYMPLE

INTERNET BEAT



Contribute 3, from Macromedia (www.macromedia.com): Updated Web-page-publishing program adopts the Dreamweaver MX 2004 engine, adding support for CSS rendering and rules-based administrative controls (\$149; upgrade, \$79).

Safari Magic 1.0, from MacEase (www.macease.com): Utility lets Safari users collect, edit, and organize text and graphics from multiple Web pages and non-contiguous sources, using keyboard shortcuts (\$20).

XLR8 InterView 3.0, from Daystar Technology (www.daystar-technology.com): Video-capture product adds support for multiple devices and comes with ArcSoft VideoImpression video-capture and -editing software (\$89).—COMPILED BY PHILIP MICHAELS

PRODUCTIVITY BEAT



Near-Time Flow, from Near-Time (www.near-time.com): Peer-to-peer collaborative content and knowledge manager helps individuals and groups create, collect, store, and share information (single-user license, \$100; 10-user license, \$900).

Quicken 2005 for Mac, from Intuit (www.quicken.com): Updated personal finance software adds express setup feature, improved tax-planning capabilities, and Home Inventory database for keeping track of possessions (\$70; upgrade, \$50 [after \$20 rebate]).

Studiometry 2.0, from Oranged.net Software (www.oranged.net): Organizational software for studios and freelancers adds networking support for synchronizing data using a client-server system between multiple machines (single-user license, \$70; upgrade, \$20).

Time and Budgets, from Small Town Software (www.timeand-budgets.com): Application integrates with Apple iCal—or any calendar program supporting Web-DAV—to supply time and budgeting functions for projects (hosted service starts at \$15; self-hosted, \$4,900 per server).—COMPILED BY PHILIP MICHAELS



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MA/MW 10/04

DUAL-LAYER DVD BURNERS HIT THE SHELVES

Twice as Nice

Mac users who want to squeeze more content onto their DVDs didn't have to wait long for dual-layer burning to arrive. The first external drives supporting the dual-layer DVD technology began shipping in June—earlier than expected.

Dual-layer DVDs hold as much as 8.5GB of data, or about four hours of MPEG-2 video. Most Hollywood movies take up between 6GB and 8GB of space and usually use dual-layer technology to fit it all on one DVD, including the film, alternative soundtracks, and extra features. Although it has been available for several years in the professional arena, nothing like dual-layer technology had been



available to average users (see “Double-Duty DVDs,” *Mac Beat*, April 2004)—until now, that is.

LaCie started offering its \$229 8x d2 DVD±RW Double Layer external burner (pictured) with either Roxio's Toast 6 Titanium or Pixela's CaptyDVD 2.0 included. LaCie's burner is the first external drive tailored to the Mac crowd; the company also sells a USB 2.0 and FireWire version with Toast Lite 6.0, for \$199. (LaCie, Sony, and others also offer internal dual-layer drives.) While dual-layer drives require dual-layer discs to burn 8.5GB of content, they still burn regular DVD-R and DVD+R discs, as well as CDs, at 8x.

Dual-layer discs have two recordable dye layers separated by a spacer, with a semitransparent metal layer attached to the lower layer. A drive burns the lower layer of the disc with a wider, lower-energy beam than the one used on a typical recordable DVD. The laser is then refocused to burn on the upper layer.

The first dual-layer media, known as DVD+R DL (or DVD+R9), began shipping in early July. They can burn at 2.4x speeds. But at \$12 to \$15 per disc, they also cost significantly more than standard DVD-R or DVD+R media, which you can buy in bulk for less than \$1 each.

Dual-layer-friendly software includes an updated version of Toast 6, NTI Software's Dragon Burn 4.0, and CaptyDVD 2.0. Apple's DVD Studio Pro can create dual-layer images, but OS X does not currently support burning those images with a dual-layer DVD drive. iDVD doesn't support dual-layer DVD creation at all.—JONATHAN SEFF

WHAT IT MEANS: DVD

If keeping up with DVD's many forms and formats makes your head spin faster than a disc in a DVD player, let *Macworld's* DVD glossary be your guide.

DVD5: This single-layer prerecorded DVD is capable of storing 4.7GB of data.

DVD9: This prerecorded dual-layer DVD increases disc capacity to 8.5GB. Like *DVD5*, *DVD9* refers to mass-produced DVDs, not the ones you burn yourself, though *DVD5* and *DVD9* discs are the same size as burnable media.

DVD+R DL: The official name for the first dual-layer media, which feature 8.5GB storage and 2.4x burning speeds. *DVD+R DL* discs work only with dual-layer drives.

DVD-R, DVD+R: These discs are the same size and about the same price, both have a 4.7GB storage capacity, and both burn at up to 8x. They're supported by different consortiums, however. Most new DVD burners are multiformat, meaning they burn both *DVD-R* and *DVD+R* media; to find out about your particular drive, you need to check its specifications.

DVD-RW, DVD+RW: These are also two competing DVD formats, but they are rewritable. They also store as much as 4.7GB of data and burn at speeds of up to 2x and 4x, respectively.

DVD-R/RW, DVD+R/RW, DVD±R/RW: This hardware designation signifies which writable and rewritable standard a drive supports—or whether it supports both.

HANDHELD MAKER CREATES MAC-SPECIFIC WEB RESOURCE

PalmOne's Mac Home Page

Mac-using owners of PalmOne handhelds have a place online to call their own. PalmOne, which makes Zire and Tungsten PDAs and Treo smart phones, has launched a Web site, at www.palmone.com/us/macintosh, to help Mac users get the most out of their handhelds.

PalmOne's Mac site includes tips on adding photos taken with Zire and Treo devices to an iPhoto library, as well as a section on using Apple's iSync utility with PalmOne handhelds. The site also addresses using the Bluetooth and AirPort wireless technologies built into Macs, with PalmOne products. There's a page dedicated to Mac-friendly software that runs on PalmOne handhelds, as well as a list of online

resources offering Palm-related tips and tech support.

The Mac-specific site is part of an overall effort at PalmOne to make its Web presence more user-oriented, says Rick Wootten, PalmOne's director of Internet properties. “We realized Mac users needed more in-depth how-tos,” Wootten says. “In each Mac section, we not only tell users about the way we integrate with the Macintosh, but also tell them how to do this themselves.”

PalmOne's Mac-specific Web content appears as the handheld maker hopes to reaffirm its commitment to Mac users. Earlier this year, PalmSource—a separate company that develops and licenses Palm

OS—announced that its upcoming Palm OS Cobalt operating system wouldn't include native Mac support; PalmOne has publicly declared that it will continue to support Mac users (see “A Read on Palm,” *Mac Beat*, July 2004). With 250,000 Mac users visiting PalmOne's site every month, the hardware company sees its Mac-specific Web resources as another way to ease any concerns. “We do hope this announcement helps eliminate confusion about PalmOne's commitment to Mac users,” Wootten adds.

PalmOne expects to update content on its Mac user site regularly. That includes adding a section on moving multimedia files from a Mac to a PalmOne device.—PHILIP MICHAELS

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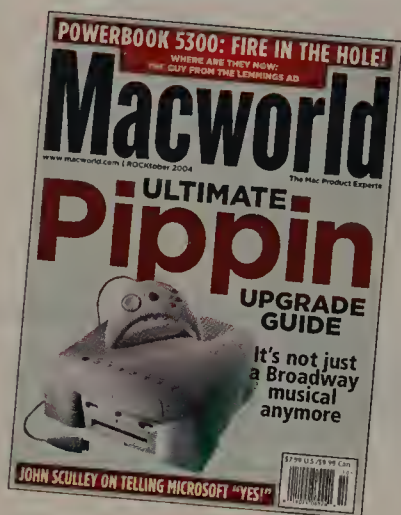
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TWENTY YEARS OF MAC MISSTEPS

(Un)Happy Days

Sure, Apple is basking in well-deserved kudos as part of the 20th anniversary of the Macintosh. But not everything touched by the company in the past two decades has turned to gold. In fact, Apple's history is littered with products or ideas the company would just as soon bury in a Logan, Utah, landfill alongside the last remaining Lisa computers. Here are five Apple misses you shouldn't expect to see feted on the cover of *Macworld* when their 20th anniversaries role around.—PHILIP MICHAELS



LEMMINGS

Rating: ★★☆☆

When: January 1985

The Idea: Eager to recapture the success of its "1984" Super Bowl ad from the year before, Apple bought another chunk of commercial time during Super Bowl XIX to advertise the forthcoming Macintosh Office.

What Went Wrong: Off-putting and a bit of a downer (the spot featured businesspeople marching single-file off a cliff) the ad bombed.

1985 MICROSOFT PACT

Rating: ★★★★★

When: October 1985

The Idea: Apple CEO John Sculley gave Microsoft the right to use some Mac OS technology in Windows, in exchange for continuing to upgrade Word and delaying a Windows version of Excel for a year.

What Went Wrong: By agreeing to do what it probably would have done anyway, Microsoft got a hand from Apple in developing the OS that would eventually marginalize the Mac platform—for free.

changed to BHA (which allegedly stood for "Butt-Head Astronomer").

PIPPIN

Rating: ★☆☆☆

When: March 1996

The Idea: Apple teamed up with toy maker Bandai to develop this 66MHz game console that could also connect to the Internet.

What Went Wrong: More expensive than a PlayStation! Less powerful than a Macintosh! Scrapped by its developers in a single bound!

POWER MAC G4 LAUNCH

Rating: ★☆☆☆

When: October 1999

The Idea: Apple unveiled its Power Mac G4 in 400MHz, 450MHz, and 500MHz configurations.

What Went Wrong: A shortage of G4 chips forced Apple to scale back the Power Mac configurations to 350MHz, 400MHz, and 450MHz, but it didn't cut prices. Mac users were disgruntled about paying the same price for less processing power.

CARL SAGAN

Rating: ★★☆☆

When: November 1993

The Idea: Apple engineers gave the Power Mac 7100/66 the code-name "Carl Sagan" as a tribute to the famous astronomer.

What Went Wrong: Sagan, thinking Apple was trying to profit from his reputation, was less than honored—especially when, after his initial complaints, the code name was

STORAGE BEAT



Bigger Disk Extreme, from LaCie (www.lacie.com): New addition to line of external hard drives features up to 1.6TB of capacity (1TB model, \$1,199; 1.6TB model, \$2,199).

Integrity, from Avail Solutions (www.availsolutions.com): Backup and recovery software supports any combination of hardware on a network, including disk-to-disk-to-tape systems, autoloading backup systems, and multiple tape libraries (contact Avail for pricing).

Rev 35GB FireWire drive, from Iomega (www.iomega.com): External FireWire version of removable drive system offers read-and-write performance of up to 25MB per second and ships with a Mac-formatted disk (\$400; additional disks, \$60).

SANcube 800, from MicroNet Technology (www.sancube.com): FireWire 800-based storage area network product offers up to 1.5TB of online serverless storage, RAID 5 reliability, and five hot-swappable 7,200-rpm ATA-6 hard drives (\$4,995 to \$6,495, depending on capacity).

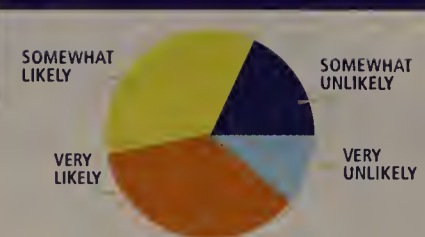
X-Spand, from Kano Technologies (www.kanotechnologies.com): Tower storage system offers up to 1TB of space, comes with two or four hard-drive bays, and features a FireWire 800 port that can throttle down to FireWire 400 speeds (\$455 to \$1,545, depending on capacity).—COMPILED BY PHILIP MICHAELS

THE READERS SPEAK

Tiger: First Thoughts

Details about Tiger are still emerging, but a majority of the participants in the Macworld Reader Panel like what they've seen so far of the next major update to OS X. Three weeks after Apple offered a first look at Tiger during its Worldwide Developers Conference (WWDC), market-research firm Karlin Associates surveyed 3,634 *Macworld* readers to gauge their reaction to the OS X update.

How likely would you be to buy Tiger if it was available now?



TOTAL RESPONDENTS: 3,629

Asked if they would buy Tiger if it were available right now, nearly three-fourths of the 3,629 who responded said they probably would. Only 11 percent described themselves as very unlikely to buy Tiger. But with the OS update not slated to ship until sometime during the first six months of 2005, Apple has plenty of time to change people's minds.—PHILIP MICHAELS



GO TO WEB:

Read the complete results of our Tiger poll—including the key features that *Macworld* readers think are missing from the next OS—online at find.macworld.com/0047.

UTILITY BEAT



Mail Factory, from BeLight Software (www.belightsoft.com): Utility takes data from Apple's Address Book, Microsoft's Entourage, Qualcomm's Eudora, and Now Software's Now Up-to-Date & Contact to produce address labels and envelopes (\$30).

You Control: Fonts, from You Software (www.yousoftware.com): New font-menu utility displays fonts in their own typefaces and groups them in proper families (\$30; \$10 for existing You Control and You Synchronize users).—COMPILED BY PHILIP MICHAELS



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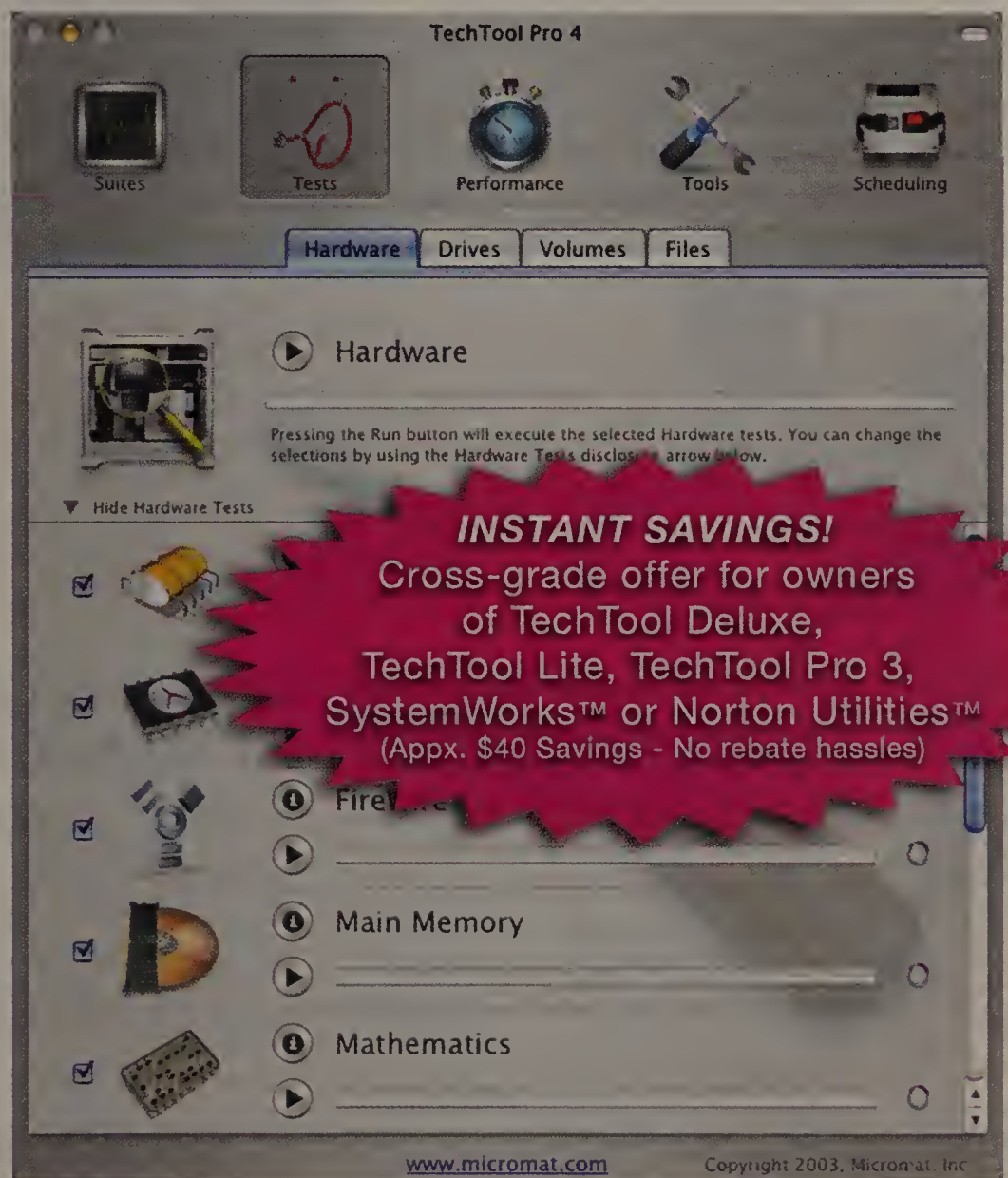
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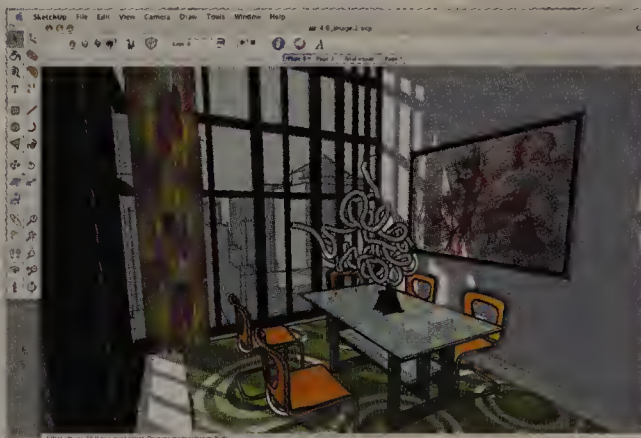
BEST OF SHOW WINNERS TAKE CENTER STAGE AT EXPO

Leaders of the Mac Pack Hit Boston

July's Macworld Expo in Boston may have lacked the crowds that flock to the San Francisco edition of the trade show each year, as well as the presence of a certain Cupertino-based computer maker. But the people who attended the first Macworld Expo in Boston since 1997 got a glance at the latest Mac hardware and software from the nearly 80 developers exhibiting at the show. As always, the editors of *Macworld* handed out Best of Show awards to the top products making their public debut in Boston.—MACWORLD STAFF

SKETCHUP 4.0

The latest update to @Last Software's \$475 3-D-design program adds several new capabilities: Follow Me, for pushing or pulling a surface along a path; Texture Tweaker, for applying textures or photos across continuous surfaces; Face Me, for ensuring that 2-D models always face the camera; and The Intersector, for quickly developing complex Boolean models (www.sketchup.com).

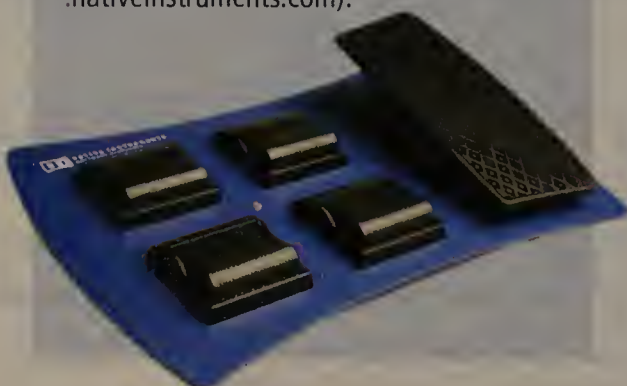


JBL ON STAGE

Harman Multimedia's donut-shaped portable music system gives iPod owners another way to share their music. Just plug in any iPod with a dock connector (including the newest models and the mini), and the \$200 JBL On Stage sends out crisp, clean sound. Touch controls let you adjust the volume; a stereo minijack connection lets you hook it up to older iPods and other devices (www.harman-multimedia.com).

GUITAR RIG

Native Instrument's \$499 guitar simulator emulates classic and modern amplifiers, cabinets, microphones, and effects. The included Rig Control foot controller (pictured) lets guitarists activate effects through assignable switches and a pedal without requiring a MIDI or a USB interface. Guitar Rig works with programs such as Apple's GarageBand music-creation software as an Audio Unit plug-in; it also runs as a stand-alone product (www.nativeinstruments.com).



PHONEVALET MESSENGER CENTER

This \$200 program from Parliant transforms your Mac into a telephone answering service, offering voice mail, caller ID, call recording, and fax support. It comes with a USB telephone adapter, features AppleScript support, and integrates with Now Software's Now Up-to-Date & Contact (www.parliant.com).

SLICK VOLUMES 7 AND 8

The latest collection of Slick Transitions and Effects, from Gee Three—\$50 for volume 7, and \$70 for volume 8—includes an image-stabilization plug-in for eliminating shaking from handheld camera work, a tool that applies morph effects to home movies, and many OpenGL-based 3-D transition effects for iMovie (www.geethree.com).

IMAGING BEAT



AutoSmooth, from HumanSoftware (www.humansoftware.com): Photoshop plug-in smooths skin and other surfaces while cutting down on harsh shadows and highlights (\$79).

CanoScan 3000ex, from Canon (www.usa.canon.com): Scanner offers maximum optical resolution of 1,200 by 2,400 dpi and enhanced resolution of 9,600 dpi, with 48-bit color processing (\$50).

CanoScan 8400F, from Canon (www.usa.canon.com): Scanner offers maximum optical resolution of 3,200 by 6,400 dpi and can handle 35mm to medium-format film (\$150).—COMPILED BY PHILIP MICHAELS

MULTIMEDIA BEAT



Ambient FX HD, from Reelhouse (www.reelhouse.com): Compilation of royalty-free high-definition video clips contains 27 30-second background clips for seamless looping into Final Cut Pro and DVD Studio Pro projects (\$399).

Audio Hijack 2.0, from Rogue Amoeba (www.rogueamoeba.com): Updated audio-recording and -enhancement utility adds the ability to record using Dolby Advanced Audio Codec and Apple Lossless formats, and a Recording Bin feature for organizing and previewing audio clips (\$32; upgrade, \$10).

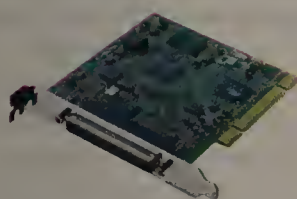
Flash MX 2004 7.2, from Macromedia (www.macromedia.com): Update to multimedia authoring tool features 120 bug fixes and enhances performance and stability (\$499; upgrade, free for Flash MX 2004 and Flash MX 2004 Professional users).

iShell 4, from Tribeworks (www.tribeworks.com): New version of cross-platform multimedia-development program adds one-click deployment and increased protection of media assets (\$495 per platform; \$795 for multiplatform development).—COMPILED BY PHILIP MICHAELS



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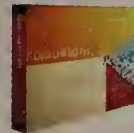
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REVIEWS

OUTSTANDING: ★★★★★
VERY GOOD: ★★★★
GOOD: ★★★
FLAWED: ★★
UNACCEPTABLE: ★

Reviews you can trust: Macworld rates only final shipping products, not prototypes. What we review is what you can actually buy.

FileMaker Pro 7

Database Application Includes Revolutionary Changes but Retains Ease of Use

BY WILLIAM PORTER

Version 7 of FileMaker's popular flagship product, FileMaker Pro, has something for everyone, including end users who have never defined a field or tweaked a layout, managers who make purchasing decisions, and IT types who support networks and care about security and reliability. But developers—whether they're in-house, independent, or do-it-yourself—will be most excited about this release.

Fewer Worries for IT Professionals

For IT pros, FileMaker Pro 7 offers major improvements in security and multiuser access.

Network administrators will find that configuring access privileges and dealing with passwords is both easier and more flexible than it used to be. For example, it's now possible to give a single account both edit-only access to existing layouts and create-and-edit privileges with respect to new layouts, so a user can define custom reports.

Discussion of FileMaker Server 7 (for LAN sharing to more than 5 users) and a new product, FileMaker Server 7 Advanced (for LAN and Web both), is outside the scope of this review, but the specifications are impressive. The number of concurrent users on a LAN has doubled to 250. And due to major improvements in the Instant Web Publishing feature, Web access to a database is remarkably similar to LAN access in overall functionality. Web users see the same layouts, click on the same buttons, and (in most cases) benefit from scripts that work the same way.

Something for Ordinary Users, Too

FileMaker Pro 7 also has its share of improvements that ordinary users will appreciate, even if many require that a developer set them up. It's now possible to configure layouts so that changes made to a record require confirmation before they're saved; if you discover you've edited the wrong record, you can click on the Cancel button and no harm will be

done. Text-formatting functions make it easier than ever to do things such as flag invoices that are 60 days past due and show negative calculation results in red. A developer can also assign autoenter calculation formulas to data-field definitions, to format phone numbers and Social Security numbers automatically.

In addition, many old technical limits have been obliterated. Container fields are no longer limited to multimedia files such as photos or QuickTime movies; in fact, each container field can now store virtually any kind of document, even other FileMaker Pro databases as large as 4GB. According to FileMaker, text fields can now hold as much as 2GB of text (up from 64K), and files can grow to 8 terabytes (up from 2GB).

Liberating Developers

The improvements I've already mentioned would be enough for an ordinary upgrade, but this isn't an ordinary upgrade. Beneath the surface, in fact, it's a whole new app.

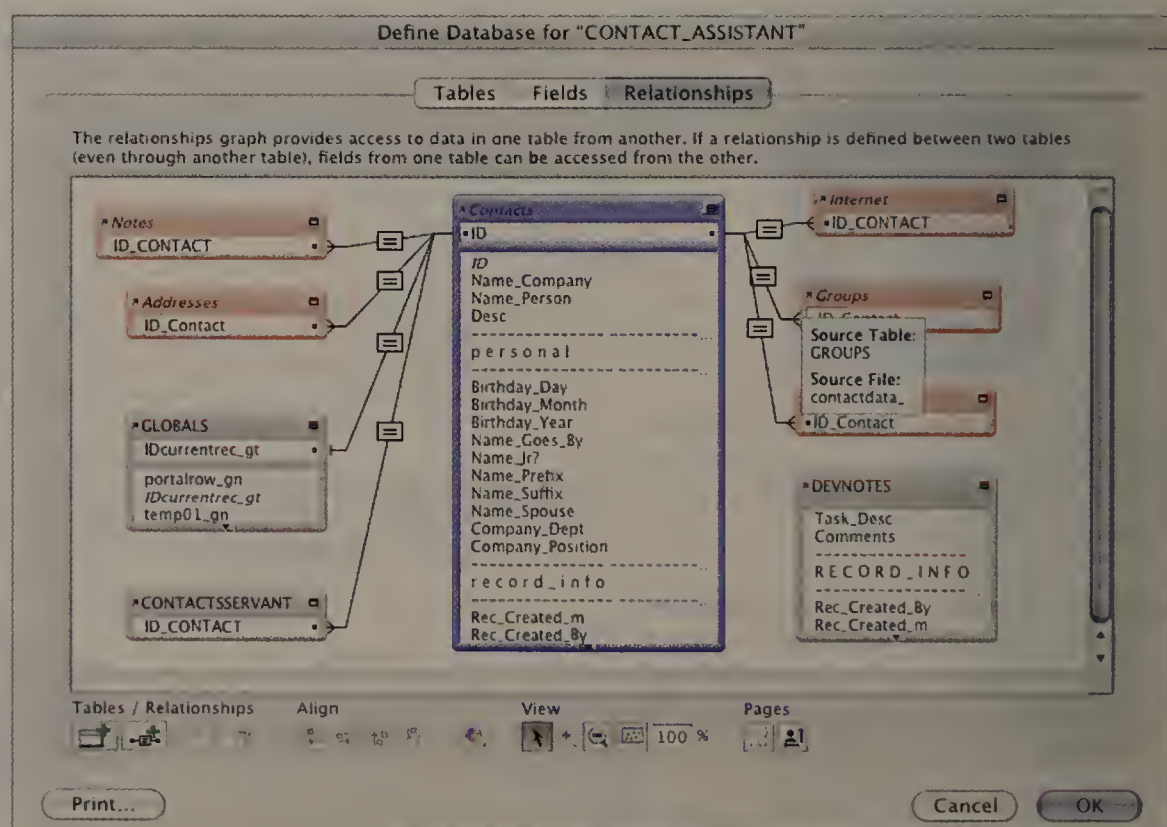
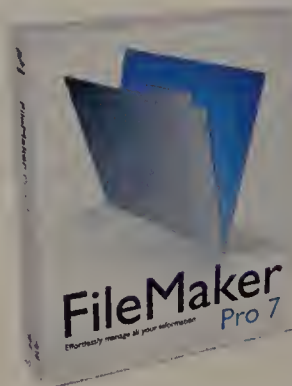
The biggest news in FileMaker Pro 7 is that developers are no longer constrained by the old one-file-equals-one-window-equals-one-data-table rule. In earlier versions of FileMaker Pro, anything more complex than a grocery list required multiple files—one file

for each distinct class of data (accounts, invoices, line items, products, suppliers, and so on). In FileMaker Pro 6, tasks such as changing passwords and defining relationships involved opening file after file. Sorting lists of related records in portals in more than one way often required creating multiple copies of the same relationship. And getting data from indirectly related files was, well, a pain in the neck. Amazingly, it all worked pretty well. But looking back on it now, I have to say that the old way was a bit nutty.

Anyway, it's all changed dramatically for the better with FileMaker Pro 7.

One file, one window? Not anymore. Even in a single-file database, you can open multiple windows, showing different sets of records from the same table, or records from different tables, or simply using different layouts. Users working in simple databases just use the New Window command. Developers can open and name new windows procedurally, define their dimensions, and control their placement. This is a huge step forward.

As for the one-file-one-table rule, it's gone. Maximum number of tables in a file? According to FileMaker, it's now one million, up from only one table per file in FileMaker Pro 6. A single database file—say, Library_of_Congress.fp7—can now contain absolutely every element of a complex relational database: dozens of tables, hundreds



Striking Up Relationships Each object on the graph represents an instance of a single data table. To define a simple relationship, draw a line from one match field to another.

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44 The Game Room

Big Bang Chess, Rise of Nations,

Space Colony, Tapwave Zodiac,

Total Immersion Racing

54 Mac Gems

Fingerless Therapeutic Gloves,

FireWire 800 Adapter, FireWire

9-6, IceKey, iPod Battery,

PocketDock Combo, PocketDock

Line Out

or thousands of fields, layouts, scripts, value lists, and all the data, to boot.

And you don't have to put everything in one file. Instead, in FileMaker Pro 7, you can do whatever you think works best for your project: all the tables in one file, or each table in its own file (still possible), or data tables in one file and scripts and layouts in another file that might have no tables at all, or different front-end files for different departments in a company that all access the same back-end data, or any number of other permutations.

Relationships Go GUI

Rich new possibilities require a flexible new interface for developers. You now define relationships between data tables using something called the Relationships Graph. To create a simple relationship between two tables, draw a line between the match fields (see "Striking Up Relationships"). More-complex relationships can be defined using a special dialog box; for example, an account record can quickly be related to all invoice records whose paid-date field is empty and whose invoice-date field is more than 30 days in the past.

Like many innovations, the Relationships Graph solves some problems and creates others. If you need to relate tables X and Y in more than one way (as sometimes happens), you'll discover that the graph will not tolerate circularity. To avoid this, you have to place a second instance—what FileMaker calls an "occurrence"—of one of the tables on the graph. Even a relatively small number of tables whose basic relationships could be represented in a straightforward ER (entity-relationship) diagram can turn into a rather scary-looking Relationships Graph in FileMaker Pro 7.

Developers I've talked to are still debating the best ways to deal with the new relational model, but nobody seems to want to go back to the old one. Managing more than two or three tables takes careful planning, but that's not a drawback. Careful planning has always been the key to good database design. And the tools in version 7 are an order of magnitude more powerful than those available in earlier versions.

What's Not to Like?

FileMaker Pro still can't trigger a script automatically when the user exits a field. And I wish I had more control over the program's menus. However, it should be noted that both of these limitations can be remedied by third-party plug-ins.

Converting the Old

To use your old databases with FileMaker Pro 7, you'll need to convert the old files to the new .fp7 file format. You should be able to convert simple databases without a hitch, but converting even moderately complex databases may be somewhat tricky. The good news is that plenty of first-rate technical help is available for free on FileMaker's Web site at www.filemaker.com/upgrade. Study up before you try to convert. It's possible (and legal) to run FileMaker Pro 6 and 7 on the same machine at the same time, so you can jump into FileMaker Pro 7 and bring your old files along when you're ready.

Macworld's Buying Advice

If you're happy with the old FileMaker database you're running now, upgrading to FileMaker Pro 7 may involve some trouble and

expense. And even if you're already using OS X, converting old databases will take some planning. Nonetheless, version 7 offers compelling advantages. It's the most secure, most reliable, most powerful, and most flexible FileMaker Pro ever, and it's still every bit as user-friendly as its predecessors. I think you'll be impressed. □

RATING: ★★★★★

PROS: Powerful new tools for managing files, windows, and relationships; practically unlimited file size; better control over user-access privileges; easy to share databases on the Web.

CONS: Relationships Graph can get confusing; can't trigger script when user exits field.

PRICE: \$299; upgrade, \$149

OS COMPATIBILITY: Mac OS X

COMPANY: FileMaker, 800/325-2747, www.filemaker.com

Xserve G5

Nearly Miraculous Design Squeezes Tons of Functionality into 1U Space

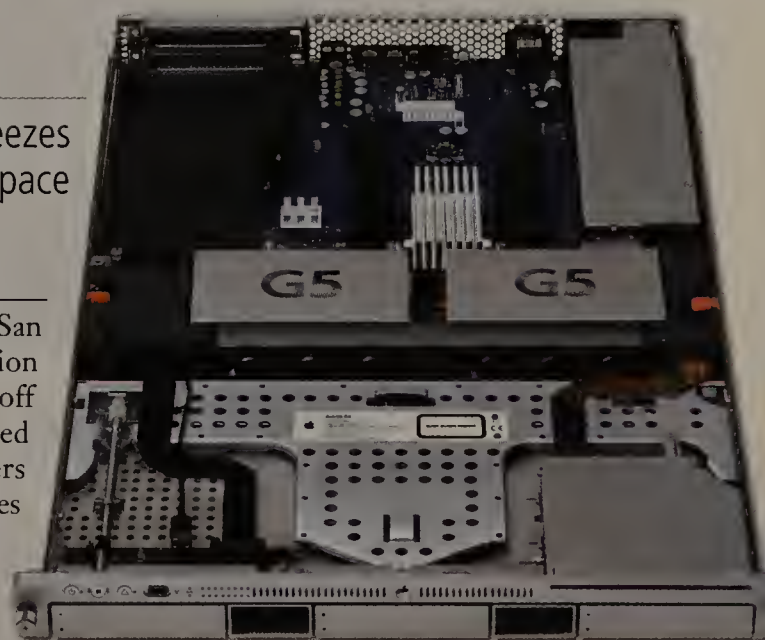
BY P.J. CONNOLLY

A little more than a year ago, I sat in San Francisco's Moscone West convention hall as Steve Jobs pulled the wraps off the Power Mac G5 desktop, and I tried to figure out how Apple's engineers would shoehorn two small furnaces into the Xserve's 1U chassis. Walking out of the building, a colleague from *InfoWorld* and I shook our heads and said that it couldn't be done, that they were going to have to use a 2U box. Now the Xserve G5 has proved us wrong, and we couldn't be happier.

Dual Design Goals

Apple's design team pulled off the impossible by throwing ten heat sensors and an intelligent fan subsystem into the Xserve case, and by using newly available 90-nanometer PowerPC G5 CPUs from IBM. Apple has also radically changed the server's front panel, reducing the number of drive bays from four to three.

Compared with its predecessors, the Xserve G5 has a striking appearance; the twin air scoops that keep the two 2GHz G5 processors from melting down make



sure of that. And inside, the polished and embossed CPU heat sinks are decorative and functional.

Speed and RAID

Some other tweaks to the Xserve G5 compensate for the shortcomings of the earlier models; for example, two Gigabit Ethernet interfaces are built into the server, and independent frontside buses running at 1GHz rapidly sling data in and out of the Xserve's processors. Although a drive bay had to be sacrificed to make room for the cooling system's intakes, the Xserve's storage capacity is now greater than that of the G4 models, thanks to new, 250GB Serial ATA drives.

continues

The new drive modules aren't interchangeable with those found in the G4 Xserve and the first-generation Xserve RAID, but they will work in the new RAID box (see our review on this page). The new Xserve can also hold 8GB of error-correcting memory, and it can slosh more than 6GB of data through RAM in one second.

The Xserve's remaining major flaw will soon be rectified: As we went to press, Apple shipped an add-on card that provides hardware RAID support for the Xserve family, which is available through the Apple Store. Although you can use Mac OS X's Disk Utility to set up a software-based RAID, a hardware RAID is faster. More importantly, the new card makes the Xserve more competitive with Intel-based servers, where that feature has been standard—often built-in—for years.

The Icing on Top

The Xserve remains the most easily managed server on the market. Much of that is a feature of the OS; nevertheless, the tight, secure integration of the Xserve management application (updated to version 10.3.4 in June), the hardware, and the OS makes this server very versatile. The new suite is mostly a series of bug fixes and interface tweaks, but, oddly enough, it also includes an update to QuickTime Broadcaster.

Next year's release of OS X 10.4, or Tiger, should bring more enhancements to the Xserve management tools. I hope to see a somewhat tighter integration of the utilities, and I would especially appreciate having the RAID-related utilities be as accessible from within the tools as the other management pieces are. Although Panther Server is billed as optimized for the G5 CPU, I suspect that Apple's developers still have some tricks up their sleeves.

An unlimited-client license for Mac OS X Server remains part of the Xserve package unless you buy the Cluster Node configuration—which features a 10-client license, no CD drive, and only one drive bay. Single- and dual-processor configurations of the Xserve G5 cost \$2,999 and \$3,999, respectively, and build-to-order options are available.

X Speed

Although Apple's Xserve technology is unquestionably cutting-edge—especially the

dedicated high-speed frontside processor buses and the point-to-point system controller—some reports say that the server's performance leaves much to be desired. Between Apple's performance claims and some of our unpublished results, I don't know what to believe—which is why I put very little stock in benchmarking this type of server. But from my testing perspective, the Xserve feels fast enough. While it may not shine in every com-

puting scenario, the Xserve is well suited to the role of either a general-purpose server or a member of a computing cluster.

Macworld's Buying Advice

Apple took a pretty good server, the G4 Xserve (★★★★; September 2003), and made it even better. Although some problems remain, the Xserve G5 kicks butt effortlessly and looks good doing it. ☐

3.5TB (SFP) Xserve RAID

Capacity Growth, Compatibility Changes Mark Next-Generation Storage Product

BY P.J. CONNOLLY

The original (2.52TB) Xserve RAID (★★★★; September 2003) was an impressive first try for Apple's entry to the mass-storage market. The enhancements in the second go-around are pretty easy to sum up, but they still make the Xserve RAID an excellent choice.

The most important new feature is that the capacity of the 3U RAID chassis is now 3.5TB, thanks to Apple's decision to switch from ATA-based drives—used in the first generation of the Xserve RAID and the first

shipped with the original Xserve RAID. Version 1.3.1 includes a number of bug fixes and became available as testing wrapped up; all I had time to do was install it and verify that it didn't break my testbed.

The Xserve RAID is now a true multiplatform player; in addition to Mac OS X, it's now certified for Microsoft Windows Server, Novell NetWare, and Red Hat Linux. On top of that, leading storage hardware and software vendors including Brocade, Emulex, and Veritas have certified



two Xserve models—to larger-capacity Serial ATA drives. But the Xserve RAID's capacity is one of only a few technological advances I can point to that have become 40 percent better in the course of a year.

There are some subtler changes in the new hardware, as well as a few in the updated RAID Admin management utility. Although the Xserve RAID's twin Fibre Channel controllers still aren't redundant—each controller serves half of the drive bays—Apple's decision to switch the controller module's interface from an HSSDC2 (High-Speed Serial Data Connector 2) receptacle to an SFP (Small Form-factor Pluggable) jack should simplify the setup process. The downside is incompatible, but visually similar, cables for the two Xserve RAID models.

The Java-based RAID Admin utility is still not going to provide anyone's idea of instant response, but the version I did most of my testing with (1.3) does seem to be somewhat peppier than the version that

the Xserve RAID with their products. So customers can now use the Xserve RAID in their storage area networks—thus spending less money than they would for similarly configured hardware from HP and IBM.

Macworld's Buying Advice

The Xserve RAID is nearly perfect; for its price, there's no better RAID available. When Apple releases its upcoming Xsan software, it's going to be tough to find a better all-around package for building SANs (storage area networks) on a budget. ☐

XSERVE G5

RATING: ★★★★★

PROS: OS license included in purchase; easy administration and monitoring; works well in mixed environments.

CONS: Hardware-based RAID not built-in, as is the case with similar Intel-based servers.

OS COMPATIBILITY: Mac OS X

PRICE: \$3,999; single-processor model, \$2,999

COMPANY: Apple Computer, 800/538-9696, www.apple.com

3.5TB (SFP) XSERVE RAID

RATING: ★★★★★

PROS: Certified for Linux, Mac, NetWare, and Windows; now supports 3.5TB.

CONS: On-board RAID controllers still not redundant.

OS COMPATIBILITY: Mac OS X

PRICE: \$10,999

COMPANY: Apple Computer, 800/538-9696, www.apple.com

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Toon Boom Studio 2.5

2-D Pro Animation Package Delivers New Tools for 'Toons

BY GALEN FOTT

Thanks to the runaway success of 3-D computer-animated feature films, led by Pixar (Steve Jobs's *other* company), traditional, hand-drawn animation is in a slump. Animation studios are tossing aside their pencils to jump on the 3-D bandwagon, abandoning the art form that started it all. Toon Boom Studio 2.5 could be just the thing to turn that slump around.

The previous version of Toon Boom (★★★★; March 2002) was nothing less than a full-fledged animation studio. It let users draw, ink, paint, assemble a soundtrack, and use a multiplane camera to frame and record their shots. This long-awaited new release adds several important tools and capabilities into the mix. With so much animation power readily available at such a reasonable price, independent artists have the means to create the next—well, *'toon boom*.

Draw a Little Closer

If you're handy with a Wacom pen and tablet, the easiest way to get started with Toon Boom Studio is to use the program's Drawing mode to sketch. The pressure-sensitive Brush tool gives you variable line widths, and there are simple shape-drawing tools. The Polyline tool, a new element in the toolbox, is great for users who are comfortable with an Adobe Illustrator-style Bézier pen. (You can also import art directly from Illustrator CS.) This version's toolbox has only one significant omission: a type tool for generating titles.

All of Toon Boom's tools draw in vectors, rather than pixels, and you can export images to the Macromedia Flash SWF format. The new Smooth command reduces the number of points in vector lines, lowering the SWF file size. If you'd rather draw on paper, the Import And Vectorize command now lets you scan your drawings directly into the program and convert them to vector images on-the-fly. While this saves time and disk space, guessing the correct vectorization filter settings before you scan can be tricky; a preview would be helpful.

You can also scan drawings without converting them to vector images, but then you miss out on Toon Boom's dynamic coloring tools. Just click inside a drawn shape to fill it with the selected color. If your drawing style is sketchy and your shapes aren't always perfectly closed, the new, adjustable Auto Gap setting ignores small gaps so the shape fills properly. And if you're careful to name your swatches correctly—name the swatch for the object you're coloring ("tutu" instead of "yellow")—it's a snap to go back and make changes globally if you decide your hippo ballerina would be prettier in pink.

Toon Boom's Exposure Sheet lets you plan the timing of your individual art elements. Among the program's most welcome new features are the Create Cycle commands, which eliminate the old version's reliance on tedious cutting and pasting to create sequences of repeating drawings, such as walk cycles.



Speak, Boy! Toon Boom Studio's automatic lip-sync feature can get lips flapping in no time.

Vocal Sync

The previous version of Toon Boom could analyze a dialog track and generate a lip-sync chart for you to refer to as you animated your character's mouth. Version 2.5 goes a step further: If you draw a stationary character's mouth shapes in advance, the program can place those shapes according to a soundtrack analysis and create an instant lip sync. The results probably wouldn't satisfy Uncle Walt, but this feature is great for limited TV-style animation.

As you refine your synchronization, the Sound Element Editor's new audio scrubbing is absolutely vital; it lets you closely analyze the audio so you can make your own adjustments.

Scenic Design

Toon Boom's Sceneplanning mode—where you gather various art elements to animate them on a virtual 3-D stage—has been updated in version 2.5. Audio scrubbing is available here, too, so you can synchronize the broader movements of your animation to the soundtrack. And you can create dynamic multiplane effects of depth and perspective by animating your camera,

zooming past foreground elements, and moving in for a close-up.

The most welcome change to the Sceneplanning mode is that you can now draw in it. Before, this mode often revealed problems with your animation that could be fixed only in Drawing mode. In this version, you can just pick up a drawing tool and touch up your art at any time in the process.

Toon Boom Studio 2.5 can export to QuickTime, in addition to Flash. You can easily drop your animated scene into an iMovie project, or you can render a movie, complete with alpha channel, to composite

in a program such as Apple's Final Cut Express. The program comes with a 100-page Getting Started book, but, unfortunately, the 450-page printed manual has been replaced with a PDF file.

Macworld's Buying Advice

Toon Boom Studio 2.5 is a fantastic, reasonably priced program that gives you almost every tool you need in order to produce hand-drawn animated cartoons on a Mac. For previous owners, this version has a cavalcade of new features that make it an essential upgrade. For new users who can draw reasonably well and who want to animate, passing this program up would be downright goofy. □

RATING: ★★★★★

PROS: Excellent value; outstanding drawing, painting, animation, and multiplane camera tools; easy cycle creation; audio scrubbing; drawing tools available in Sceneplanning mode.

CONS: No type tool; no vectorization preview; no printed full manual.

PRICE: \$374; upgrade, \$199

OS COMPATIBILITY: Mac OS X

COMPANY: Toon Boom Animation, 514/278-8666, www.toonboom.com

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Midsize Flat-Panel Displays

Seven New Models Brighten the Landscape

BY JAMES GALBRAITH

Where did all the CRT monitors go? Slowly but steadily, those big, heavy displays that used to swallow up almost everyone's desk are going the way of the dodo, giving way to slim, trim LCDs. The reasons for choosing an LCD over a CRT monitor are clear: they take up less space, use less energy, and look great.

Recently, Macworld Lab put seven of these thin displays to the test. Five were 19-inch displays: the AG Neovo X-19AV, the Eizo FlexScan L795, the NEC MultiSync LCD1960NXi, the Princeton SENergy 914, and the ViewSonic VP191b. The Apple 17-inch Studio Display and the Samsung SyncMaster 172X are 17-inch models. All can be connected to your Mac digitally and all have a native SXGA (Super Extended Graphics Array) resolution of 1,280 by 1,024 pixels. This means that although their phys-

ical sizes differ, all the monitors show the same information. For example, the same Photoshop document, toolbars, and palettes are visible on both monitor sizes. The difference is the amount of space the monitor stuffs those pixels into.

The 17-inch displays generally cost less than the 19-inch displays and, obviously, take up less desk space. There were no clinkers in the group, but the NEC LCD1960NXi edged ahead of the competition by producing gorgeous, rich colors viewable at just about any angle. While most of these monitors have a standard three-year warranty, the Eizo guarantees its display for five years, and Apple guarantees its model for only one year.

Orientation Variations

Most of the LCDs we've reviewed in the past were physically capable of pivoting. The prob-

lem was that there was no pivoting software for OS X. With the release of its Radeon 9800 Pro Mac Edition cards, ATI gives OS X users the ability to pivot their displays using its VersaVision feature. Of the displays in this review, only the Eizo and the ViewSonic can pivot.

The Apple display uses a picture frame-style stand that allows you to lean it back a few inches. The NEC has a hinge at the end of a telescoping arm that gives it plenty of mobility—up, down, backward, and forward—in addition to a swivel base. The Eizo and the ViewSonic share many of the NEC's moves, and they add pivoting to the list. The Princeton and the Samsung use a hinge mechanism much like the one you'll find in the recently announced Apple Cinema Displays. The Samsung can fold nearly flat on its hinge, while the Princeton has a fairly limited range of motion. The AG Neovo's hinge is located

Flat-Panels Displayed We reviewed (from left to right) Princeton's SENergy 914, Eizo's FlexScan L795, NEC's MultiSync LCD1960NXi, Samsung's SyncMaster 172X, ViewSonic's VP191b, Apple's 17-inch Studio Display, and AG Neovo's X-19AV (photos not to scale).



MIDSIZE FLAT-PANEL DISPLAYS COMPARED

COMPANY	PRODUCT	MOUSE RATING	PRICE	CONTACT	SCREEN SIZE	INTERFACE	DIMENSIONS (IN INCHES ^A)	PROS	CONS
AG Neovo	X-19AV	★★★	\$899	408/321-8210, www.neovo-usa.com	19 inches	1 VGA, 1 DVI	17.5 × 16.5 × 6.9	NeoV Optical Filter protects screen; additional connectors for composite and S-Video.	Colors a little light; pronounced color shifts at extreme angles.
Apple	17-inch Studio Display	★★★★	\$699	800/692-7753, www.apple.com	17 inches	1 ADC	17.6 × 17.3 × 6.9	ADC cable; USB hub; no external power supply; excellent color and viewing angle.	Short standard warranty; large footprint.
Eizo	FlexScan L795	★★★★	\$1,199	562/431-5011, www.eizo.com	19 inches	1 VGA, 1 DVI	16.3 × 13.4 × 8.1	Excellent text legibility; excellent viewing angle; long warranty; very flexible (pivot); picture-in-picture feature; USB 2.0 hub; no external power supply.	Expensive; no DVI cable.
NEC	MultiSync LCD1960NXi*	★★★★½	\$729	888/632-6487, www.necmitsubishi.com	19 inches	1 VGA, 1 DVI	16.4 × 15.3 × 7.5	Rich colors; excellent color and viewing angle; up, down, and tilt adjustments.	No DVI cable.
Princeton	SEnergy 914	★★★★½	\$699	888/668-7655, www.princetongraphics.com	19 inches	2 VGA, 1 DVI	16.6 × 15.5 × 8.7	Multiple inputs; least expensive 19-inch.	Pronounced color shifts at extreme angles.
Samsung	SyncMaster 172X	★★★★	\$539	800/726-7864, www.samsungusa.com	17 inches	1 VGA, 1 DVI	14.2 × 14.3 × 7.6	Inexpensive; small; thin; unique design; excellent text display.	Pronounced color shifts at extreme angles.
ViewSonic	VP191b	★★★★½	\$679	800/888-8583, www.viewsonic.com	19 inches	2 VGA, 1 DVI	16.4 × 14.1 × 9.4	Multiple inputs; pivot; no external power supply.	Pronounced color shifts at extreme angles.

★ = Editors' Choice. ^A Width × height × depth.

directly below the display, giving it about the same range of motion as the Princeton.


Edgy Look

Most manufacturers tried to make their displays as small as possible by placing a thin frame around the screen. These range in size from 3/8 of an inch for the Samsung to 1 inch for the AG Neovo. The Apple is in a class by itself, as its frame extends a full 2 inches past the screen, making its 17-inch LCD larger than all of the 19-inch displays in this group.

The only other significant design difference belongs to the AG Neovo, which uses a NeoV Optical Filter (patent pending). This pane of hardened, scratch-resistant, antiglare optical glass protects the screen against damage—a feature that pleased our panel of experts.

Connections

Each of these displays can connect digitally to your Mac. A digital connection is preferable to analog because LCDs use an internal digital signal; an analog connection requires signal conversions that can cause

	JURIED RESULTS		
	TEXT LEGIBILITY	COLOR FIDELITY	VIEWING ANGLE
AG Neovo X-19AV	Good	Good	Good
Apple 17-inch Studio Display	Good	Excellent	Excellent
Eizo FlexScan L795	Excellent	Very Good	Excellent
NEC MultiSync LCD1960NXi	Good	Excellent	Excellent
Princeton SENergy 914	Very Good	Very Good	Good
Samsung SyncMaster 172X	Excellent	Very Good	Good
ViewSonic VP191b	Good	Very Good	Good
BEST RESULTS IN BOLD.			
All displays were connected digitally to a dual-1GHz Power Mac G4 with OS X 10.3.4, 512MB of RAM, and an ATI Radeon graphics card installed. We then assembled a panel of experts to judge each display, using a variety of test images in Photoshop CS and Microsoft Word. The jurors assigned each display a rating of Excellent, Very Good, Good, Flawed, or Unacceptable.—MACWORLD LAB TESTING BY JAMES GALBRAITH			

you connect keyboards and other peripherals without having to reach around to the back of your computer. Aside from the Apple, only the Eizo provides this type of connection. The AG Neovo also provides connectors for both S-Video and composite video, allowing you to connect a DVD player, a VCR, or a camcorder directly to the display.

point, of the display while it's connected digitally to your Mac. Samsung offers color controls only in analog mode, claiming this is necessary to correct color-consistency problems caused by the digital-to-analog conversions. Changing the color of white from warm to cool or vice versa alters the midtones as well, so knowing and being able to set the white point across different displays can aid

in achieving consistent representations of a file's colors throughout a workflow. While this was once the exclusive province of CRTs, newer LCDs give users the same flexibility.

When *Macworld's* experts looked at our standard color-display test files, they found that all the displays did a good job of representing the file's colors, though some images were more saturated than others. The AG Neovo looked a little washed out,

while the NEC and, to a lesser degree, the Apple were deep, rich, and beautiful.

Next, the panel looked at a Word document containing several fonts and point sizes, to judge text legibility on each display. While the panel gave all at least a Good rating, the Samsung and the Eizo both earned Excellent ratings for clean, readable text, even at very small point sizes.

Macworld's Buying Advice

Although the competition was stiff, the NEC LCD1960NXi is our Editors' Choice for its excellent color, wide viewing angle, competitive price, and flexibility of movement. The Apple Studio Display performed well, but even with its smaller screen size, it's almost as expensive as the NEC and actually takes up more desk space. The Eizo also performed well, and we liked the picture-in-picture feature—but it costs almost 50 percent more than the NEC. If space is at a premium in your office, you might prefer the compact, 17-inch Samsung SyncMaster 172X—it's smaller than the rest and an excellent value.



on-screen noise and focus anomalies. Some older Macs support only analog connections, so each display (except the Apple) also includes at least one analog, VGA (Video Graphics Array) port. This second connector also lets you share the display between two local computers. Eizo takes the sharing concept a step further by offering a picture-in-picture mode that lets you view two desktops simultaneously on its monitor.

The Apple display uses Apple's proprietary Apple Display Connector (ADC), which provides the video signal, power, and USB connection through a single cable. This is great if you have a graphics card that supports ADC, but not all do (adapters that translate VGA and Digital Visual Interface [DVI] signals to ADC are available). This incompatibility is probably what led Apple to drop ADC in favor of DVI for its newest LCD displays.

Another feature that has become less popular with LCD manufacturers is the integration of USB hubs into the display. USB hubs can be handy because they let

The View

Are there people looking over your shoulder? If so, or if you work in an environment where multiple people might crowd around a display, you should consider an LCD's viewing angle. The viewing-angle measurement describes the range of positions (from directly in front of the display to 180 degrees to the side) from which you can view the screen and see an acceptable picture. Many of these displays promise acceptable performance at nearly every angle, and although you don't lose too much in the way of detail as you move from left to right in front of the displays, only three maintained their color fidelity at extreme angles: the Apple, the NEC, and the Eizo. The rest had pronounced color shifts at extreme angles. For instance, the AG Neovo promises a viewing angle of 170 degrees, but the red tablecloth in our picnic test image turned bright magenta at about 45 degrees.

Consistent Colors

All but the Samsung provide some way of changing the color temperature, or white

Digital-Audio Mixer-Controllers

Three FireWire-Based Multifunction Devices That Ease Mac Music Production

BY DAVID LEISHMAN

Digidesign's Digi 002, Tascam's FW-1884, and Yamaha's 01X are FireWire-based devices that serve two main purposes: each works as a stand-alone mixing console that you can operate away from your computer, and each functions as a mixing console with a hardware interface that adds analog-to-digital conversion for use with your digital-audio workstation (DAW) software (Apple's Logic Platinum or Steinberg's Cubase SX, for example). Their broad functions can help ease the transition between your roles as musician, recording engineer, and mixer, and they can allow you to maximize your productivity in the studio.

Ins and Outs

All three units can simultaneously record and play back 18 inputs and outputs. You can set up individual mikes for each musician in a modestly sized band, use four or five mikes to record the drums, and add several pieces of outboard gear, and you'll still have more channels left to work with. I'll describe the Digidesign Digi 002 and note how the other units vary from it. The Digi 002's analog inputs include four XLR connectors with switchable phantom power and preamps for mikes; eight balanced 1/4-inch analog inputs, which include four line/instrument jacks that are switchable between +4dB (pro) and -10dB (consumer); four line-level-only inputs; and a stereo pair of RCA plugs for hooking up a home stereo.

Digitally speaking, the Digi 002 has a coaxial stereo S/PDIF input that can handle 24-bit audio at 96kHz, and an optical digital input that can double as another stereo S/PDIF input or accept eight channels of ADAT (limited to 44.1kHz and 48kHz) audio. It has one MIDI-in port, two MIDI-out ports, and two FireWire ports. (The Digi 002 doesn't support using a hard drive on the second port,

and whichever unit you choose, I advise that you plug any other FireWire gear into your Mac's remaining onboard port. Digital music requires all the bandwidth you can give it.)

The devices' outputs include eight balanced analog jacks, one ADAT out, one S/PDIF out, a balanced stereo monitor and auxiliary out, a home stereo out, and a headphone jack (the Digi 002 is the only device with the latter on top of the unit). There's no Word Clock I/O for supplying master signal timing on the Digi 002; although I didn't experience any signal jitter, people with significant track requirements should note this feature's absence. And neither the bundled Pro Tools LE software nor the Digi 002 supports surround-sound mixing.

Tascam's FW-1884 offers eight XLR ins and preamps (each of two phantom-power switches governs a bank of four), and eight 1/4-inch line inputs with accompanying channel inserts for routing to offboard effects units. All of the inputs handle +4dB. The FW-1884's eight balanced outputs can be used for surround-sound monitoring. MIDI gets four ports each of in and out, and the unit offers Word Clock in and out. There are no home stereo outs.

Yamaha's 01X has two XLR ins that can accept -46dB to +4dB, as well as six balanced 1/4-inch inputs. One jack doubles as a high-impedance input for instruments such as electric guitars. Both the monitor and stereo-and-auxiliary outputs are unbalanced, so you might get more line noise than you'd

Mutitalented We reviewed (from top to bottom) three mixer-controllers: Yamaha's 01X, Tascam's FW-1884, and Digidesign's Digi 002.

like, although I didn't have any problems. Digital I/O includes one pair of coaxial RCA plugs, two MIDI ins and outs, and two FireWire ports, which also support Yamaha's mLAN technology for interconnecting musical instruments and audio gear via FireWire. (mLAN is still an emerging technology, so few devices currently support it, but Apple has added support for it in Panther. And future versions of Core Audio and Core MIDI, as well as the availability of more compatible devices, may make it a technology to be reckoned with.)



DIGITAL-AUDIO MIXER-CONTROLLERS COMPARED

COMPANY	PRODUCT	MOUSE RATING	PRICE	OS COMPATIBILITY	CONTACT	PROS	CONS
Digidesign	Digi 002	★★★★	\$2,495	9 X	800/333-2137, www.digidesign.com	Plenty of input and output connectors; reasonably good sound conversion and mike preamps; robust controls; CD support files include some OS X information; includes and is customized for Pro Tools LE software.	Minor bug while working with MOTU's Digital Performer; no surround-sound capabilities; documentation is OS 9 oriented; expensive.
Tascam	FW-1884	★★★★	\$1,599	9 X	323/727-7617, www.tascam.com	Plenty of input and output connectors; reasonably good sound conversion and mike preamps; robust controls; works well with all major sequencers; surround-sound support.	Lack of LCD panel makes track monitoring inconvenient; no OS X documentation.
Yamaha	01X	★★★★	\$1,699	9 X	714/522-9011, www.yamaha.com	Plenty of input and output connectors; reasonably good sound conversion and mike preamps; nice LCD; portable; bundled Audio Units and VST plug-ins and Studio Manager software; dedicated Web site; mLAN technology holds promise for future expansion.	Currently incompatible with Digital Performer; faders feel a little low-quality; no OS X documentation.

PHOTOGRAPHS BY PETER BELANGER

Finally, you can expand the FW-1884 and the 01X so you can add more faders—essential if you want to control more than eight on-screen faders at a time when using one of these devices as a control surface.

All of these units have analog-to-digital audio converters and preamps, and they are of comparable quality and sound fine. A high-end, stand-alone preamp or converter can cost as much as one of these units, but neither will add as much value overall to your studio.

A principal factor may be your choice of software. The FW-1884 and the 01X include preconfigured software templates that map features to onboard hardware keys for the software sequencers they support. The Digi 002 includes the Pro Tools LE sequencer and assorted RTAS plug-ins, and the 01X includes nice Audio Units and VST plug-in bundles. Yamaha also includes its Studio Manager software for independently configuring all the connections and routing for the 01X.

Hands On

The Digi 002 and the FW-1884 are big, rugged units, while the 01X is compact and relatively light. The basic physical layout of the mixing sections is standard and will be familiar to anyone who has worked with a mixer or multitrack recorder. There's a master fader, and each unit's eight channel strips include volume faders and rotary knobs for controlling assignable parameter settings (such as pan or aux sends), knobs for line trim control, and solo and mute buttons.

Each of the channel strips also offers a button to arm tracks for recording, and that's your first step into the new world of mixer-computer synergy. The faders, knobs, and buttons can also be used to control definable groups of channels and functions, and the Digi 002 and the FW-1884 offer Nudge buttons that enable you to scroll the channels controlled by the strips. The faders are all motorized, so once you automate a mix, they'll move independently during playback to re-create the physical moves you made.

You can activate sequencer-related transport and navigation functions—such as play, record, and pause—from each of these units. And each offers keyboard shortcuts for common commands. The FW-1884 provides the most built-in functionality, with preset cut, copy, paste, and delete buttons.

Following signal flow is slightly more complex using these units because they double as stand-alone mixers and DAW controllers. On a couple of occasions, I didn't hear anything in my headphones during playback, but the manuals' comprehensive routing sections soon had me rocking again. I suggest that you set aside a weekend to get intimately familiar with the routing options on your chosen unit.

Unfortunately, none of these devices had OS X-conversant printed manuals, and none helped with OS X's Audio MIDI Setup utility. The setup screenshots were all from Windows and OS 9, although Digidesign's CD-based

Core Audio documentation provided some basic figures showing how to set up OS X's Sound preference pane.

Playing Not So Nice

All of the devices are great to work with and will significantly reduce the time you'll need for creating and fine-tuning a mix, but each has quirks that range from the annoying to the unworkable.

The Digi 002 and the 01X both had problems with MOTU's Digital Performer sequencer. After I booted up my Mac, the Digi 002 presented an error message that said, "The audio hardware did not respond"; I clicked through a couple of buttons and worked without any problems, but it was disconcerting. The 01X's problems were more serious, with timing errors and stuck keys bad enough to render the combination unusable. Yamaha says it's working closely with MOTU, and the two companies should have the problems fixed by the time you read this. (Be sure to update all your pertinent software before firing up one of these devices.)

The 01X's small size, although convenient for portability, means the faders have shorter paths, which makes it harder to establish precise settings, and the plastic heads feel less substantial than the other units'. On the software front, to use the 01X, you need to launch mLAN Auto Connector on startup (you can set this up under the Startup Items tab in OS X's Account preference pane) and manually enable Connect from a menu.

The FW-1884 handled all the software tests comfortably, but unlike the other units, it doesn't have an LCD panel for monitoring your channel settings and routings. You'll want to have clear line-of-sight access to your Mac's monitor for mixing, and the way this setup forces you to look back and forth between your monitor and the FW-1884 is inconvenient.

At \$2,495, the Digi 002 is considerably more expensive than the other two units, which cost \$1,599 and \$1,699. Its from-the-ground-up synergy with Pro Tools LE may make it worthwhile for you, but the FW-1884 can also work with this sequencer via the Mackie HUI driver; for nearly \$1,000 less, you still get a device that works well with the Digidesign software.

Macworld's Buying Advice

Each of these devices significantly reduces the tedium of mouse-based mixing and brings professionalism to a home studio. If you're a Pro Tools fanatic, you're limited to the Digidesign Digi 002 or the Tascam FW-1884. If you're a Digital Performer user, you'll want to wait until Yamaha and MOTU work out their compatibility problems so you can use the Yamaha 01X. The FW-1884 offers the best balance of features, software compatibility, and price, but if its lack of onboard LCD monitoring is too big a nuisance, you still have two other great units to check out.

Dr. Frame3D

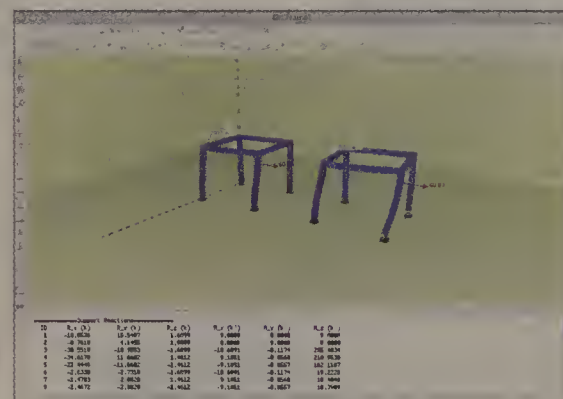
3-D CAD Program Determines Structural Strength

BY CHARLES SEITER

You could design an A-frame ski lodge with a standard CAD program, but a CAD program can't predict how much snow would cause the roof to collapse. For that, and for other load-capacity structural prediction, you need Dr. Frame3D, a spectacular real-time engineering program.

Dr. Frame3D has beamlike structural elements, joints, pivots, and hinges for assembling on-screen framework structures. Test a structure by applying forces in various magnitudes and directions (see "Feedback").

Defining structures is quick and simple; you use elements represented by little icons located on the left side of the screen, or prefabricated structures in the Modeling menu.



Feedback Applied forces test these simple structures.

It's remarkable that the on-screen structure responds instantly to applied forces. Until recently, this rapid response capability was seen only in supercomputers or workstation clusters with custom software—now you can have it on an iBook with student software that costs less than \$100.

Dr. Frame3D summarizes forces and deflections in detailed tables, and outputs results as JPEG images, as XML, and as text. But it can't import standard CAD structures.

Macworld's Buying Advice

Dr. Frame3D offers instant feedback on the mechanical properties of your structures. It's easy to learn, it has every feature you might reasonably require, and it sells for the lowest price ever seen for this kind of software. It should be part of every designer's tool kit.

RATING: ★★★★★

PROS: Amazing real-time display of complex structural response; easy to learn; reasonably priced.

CONS: Can't import standard CAD structures.

PRICE: professional license, \$899; educational license, \$99

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Dr. Software, 206/406-0366, www.drsoftware-home.com

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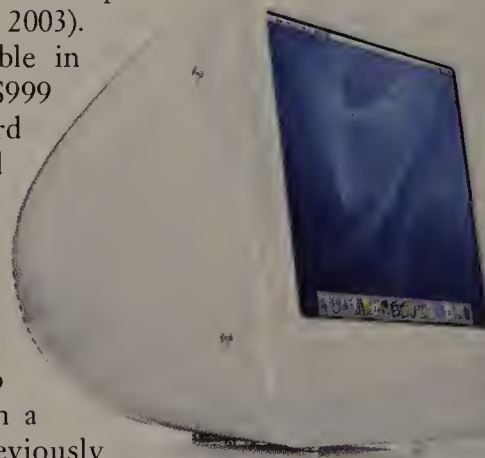
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2004

Faster Low-End Mac Holds Its Own

Though it was once reserved for the education market, the all-in-one eMac has become a great choice for anyone who needs an inexpensive desktop Mac. Apple's latest eMacs are no exception: they feature more processing power, faster RAM and bus speeds, greater graphics prowess, and more storage and connectivity options—all at lower prices and with fewer limitations than their predecessors (●●●●½; August 2003).

The eMac is available in two configurations: a \$999 model with an 80GB hard drive and a CD- and DVD-burning SuperDrive (our test system), and a \$799 model with a 40GB hard drive and a DVD-reading and CD-burning Combo drive. (The model with a Combo drive was previously \$999, and the SuperDrive model was previously \$1,299.) Each model sports a 1.25GHz G4 processor (up from 1GHz), 512K of Level 2 cache (twice as much as before), and a faster system bus (up from 133MHz to 167MHz). Both models ship with 256MB of memory and can accept as much as 1GB of RAM.

In our Speedmark tests, our test model came through with a 26 percent jump in overall score. The 1.25GHz eMac also bested its 1GHz predecessor by more than 6 minutes and 30 seconds when compressing video, and it shaved 2 minutes (about 40 percent) off the time it takes to encode a CD in iTunes. Even in our Cinema 4D XL rendering test, the new eMac was 28 percent faster. And thanks to the inclusion of the 32MB ATI Radeon 9200 graphics chip with 4x AGP support, the 1.25GHz model pushed out nearly 70 percent more frames per second in our Unreal Tournament test, going from a poor 9.7 fps to a



more respectable 16.4 fps. On the new eMac, the game looked great and felt extremely fast.

Each model has three USB 2.0 ports (and two USB 1.1 ports on the keyboard), two FireWire 400 ports, a 100-Mbps Ethernet port, a 56-Kbps modem, and a built-in microphone. Like the previous models, these eMacs are wired for AirPort Extreme but don't include AirPort cards. The \$999 eMac comes with an 8x SuperDrive, the same drive that's in the Power Mac G5.

The design of the eMac, the only product in Apple's lineup that still uses a CRT display, remains unchanged—a potential drawback for fashion-conscious or space-challenged users. Both models feature a 17-inch flat CRT monitor and have a mini-VGA port for mirroring your desktop on an additional monitor or a TV.

The 1.25GHz eMac is comparable to Apple's other 17-inch all-in-one system, the 1.25GHz iMac G4 (⬢⬢⬢⬢½; January 2004), which costs \$800 more. This eMac beat the iMac in

many of our tests but lost in MPEG-2 encoding by about 6 percent. And the iMac's 64MB of graphics RAM gives it a healthy edge in frame-rate tests.

The 1.25GHz eMac is an impressive computer that holds its own against the pricier iMac, and the lowered price makes the top-of-the-line eMac even more appealing. □

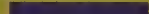











PROS: Excellent value; impressive game and application performance; the high-end eMac includes the same SuperDrive that's in the Power Mac G5 line.

CONS: Bulky CRT monitor; no FireWire 800 port.

PRICE: Combo-drive model, \$799; SuperDrive model, \$999

OS COMPATIBILITY: Mac OS X

COMPANY: Apple Computer, 800/692-7753,
www.apple.com

	Speedmark 3.3	iTunes 4.5	Unreal Tournament	Compressor
	OVERALL SCORE	MP3 ENCODE	FRAME RATE	MPEG-2 ENCODE
eMac/1.25GHz	 129	 3:01	 16.4	 13:57
eMac/1GHz	 102	 5:01	 9.7	 20:35
iMac/1.25GHz	 121	 3:20	 21.6	 13:10
	>Better	<Better	>Better	<Better

BEST RESULTS IN **BOLD**. REFERENCE SYSTEMS IN *ITALICS*.

For the full results of our benchmark tests, go to find.macworld.com/0043. Speedmark 3.3 scores are relative to those of a 1GHz eMac G4 running Mac OS X 10.3.1, which is assigned a score of 100. iTunes and Compressor scores are in minutes:seconds. We tested each system with Mac OS X 10.3.4 and 512MB of RAM installed. We tested MP3 encoding with an audio-CD track that was 45 minutes long, converting it from the hard drive using iTunes' High Quality setting. We used Unreal Tournament's Antalus Bot match average frames per second score; we tested at a resolution of 1,024 by 768 pixels. We tested MPEG-2 encoding with a DV file that was 6 minutes and 46 seconds long; we used Compressor's Fast Encode preset. For more information on Speedmark 3.3, visit www.macworld.com/speedmark.—MACWORLD LAB TESTING BY JAMES GALBRAITH AND JEFFY K. MILSTEAD

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While you may not look forward to expenses, presentations, and memos, the other you eats 'em for breakfast. Microsoft® Office 2004 for Mac has clever new time-saving features that let you – strike that, the other you – churn out stunning documents. A smarter way to work. A smarter new Office. Go to officeformac.com for a free trial.



PowerPoint Entourage Word Excel

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2004

CopyWrite 2.1

A Simple System for Organizing and Editing Manuscripts

BY MATHEW HONAN

Writing a novel is hard enough without having to keep track of all the chapters, versions, outlines, and notes floating around in your Documents folder. CopyWrite 2.1.1, from Bartas Technologies, makes the creative process a little less messy and a lot more productive.

CopyWrite is neither a word processor nor a desktop publishing program. But if you handle a lot of text, it's an excellent alternative to memory-intensive, feature-laden applications such as Microsoft Word—especially when you're handling multiple documents. For example, a 9,000-word manuscript in CopyWrite uses considerably less memory than a 900-word document in Word.

CopyWrite has more in common with other novel-writing programs, such as Stone Table Software's Z-Write and The Blue Technologies Group's Ulysses: it lets you organize text in just about any way you want. You aren't locked into a preset structure, which typically works poorly for creative writers.

Easy to Use

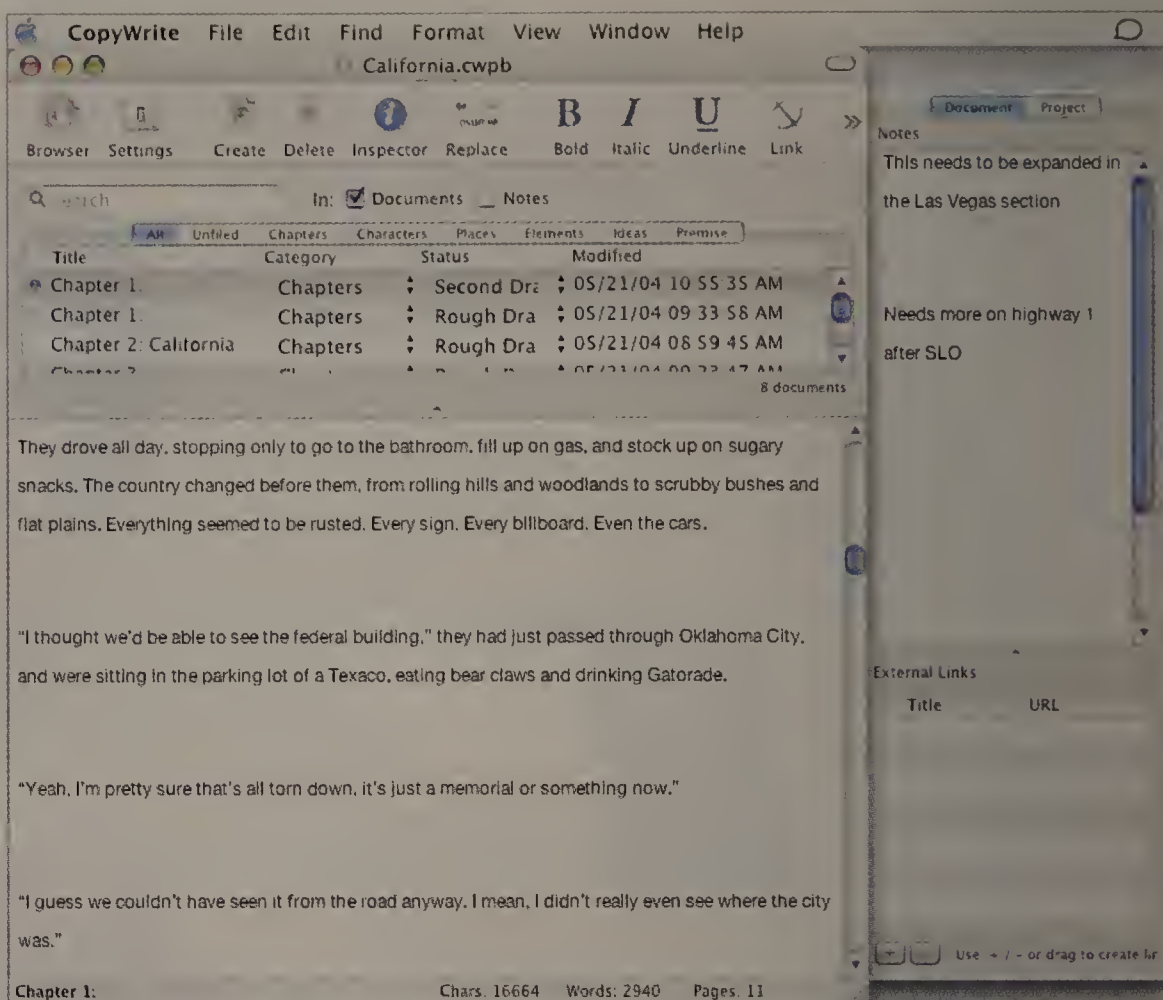
CopyWrite's interface is straightforward, and getting started is easy.

I used CopyWrite for two very different projects. In the first, it functioned as a complete writing and editing tool for a novel in its early stages; in the second, as a reporting and document-management tool for a conference I was covering. In both cases, it organized text exceptionally well while allowing me to focus on content, rather than style—unlike many word processors, in which sophisticated formatting features interfere with writing.

I found CopyWrite's default settings ideal for writing a novel. I started with a folder of story notes and a plot outline created in TextEdit, three chapters in Microsoft Word format, and several other Word documents containing stray passages and character-development notes. CopyWrite made organizing these disparate elements remarkably easy, and it eliminated the need to switch between applications. However, its import function is limited to previous versions of CopyWrite, ASCII text, and Rich Text Format files. Unfortunately, the program can't import directly from a Microsoft Word or any other word-processing document, so I had to copy and paste from my Word documents into CopyWrite.

Page-Formatting Tools

CopyWrite does include some basic formatting tools. The editing screen lets you set fonts as boldface, underlined, italic, or hyper-



Keeping Tabs CopyWrite's Project Browser (top pane) keeps track of your chapters, character notes, and settings, collapsing out of view when you want to focus exclusively on your text.

linked. The program can check spelling; provide word, page, and character counts; and perform search-and-replace operations. A global replace button lets you make changes throughout all project documents, so if you decide, for example, that "Eugene" is really more of a "Trevor," changing the character's name throughout the manuscript is no problem. CopyWrite's main organizational tools are its Project Browser window, which appears above the document, and its Notes drawer, which shows up to the right of the document. Both can be collapsed and hidden. The Notes drawer now has a special field for including external links.

Organizing Tools

The Notes drawer is helpful because it lets you take both projectwide and document-specific notes. Want to write a note that applies to only one chapter? Just associate it with that document. Need to leave a note up for the entire book? File it under Project, and it will appear in any document you work on.

The Project Browser is both a document organizer and a browser. In default mode, it lets you categorize documents as chapters, characters, places, elements, ideas, or premises, or leave them unfiled. Further, you can categorize each document according to its status in the editing process, from a new document through various drafts. The Browser makes it easy to quickly switch back and forth between documents or categories.

A handy built-in search field, similar to the one in Apple's Mail program, lets you instantly find all references to particular terms.

Users aren't locked into the default settings. Adding, removing, and renaming both category and status settings is a snap. This feature is particularly useful if you use CopyWrite for tasks other than creative writing, as I did when covering a conference in Silicon Valley.

In the Browser's Settings view, I replaced the defaults with two new categories: one for working notes, and another for final documents. This made it extremely easy to turn rough notes into polished stories. Each document—no matter how you file it—can also have multiple versions. This was particularly useful when I was editing stories to fit a word count, and it let me recover deleted passages from prior versions easily.

Macworld's Buying Advice

CopyWrite 2.1.1 is a top-notch text editor and organizer, and it's reasonably priced. I recommend it for use with multiple related documents where content is more important than presentation. □

RATING: ★★★★★

PROS: Excellent organizational features; highly customizable settings; great combination of document-specific and projectwide tasks; easy to switch between various documents and versions.

CONS: Few text formatting options; no import or export with Microsoft Word.

PRICE: \$30

OS COMPATIBILITY: Mac OS X

COMPANY: Bartas Technologies, contact@bartas-technologies.com, www.bartastechnologies.com

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VectorWorks 11

A Panoply of Productivity and Drafting Improvements Boosts Popular CAD Program's Value

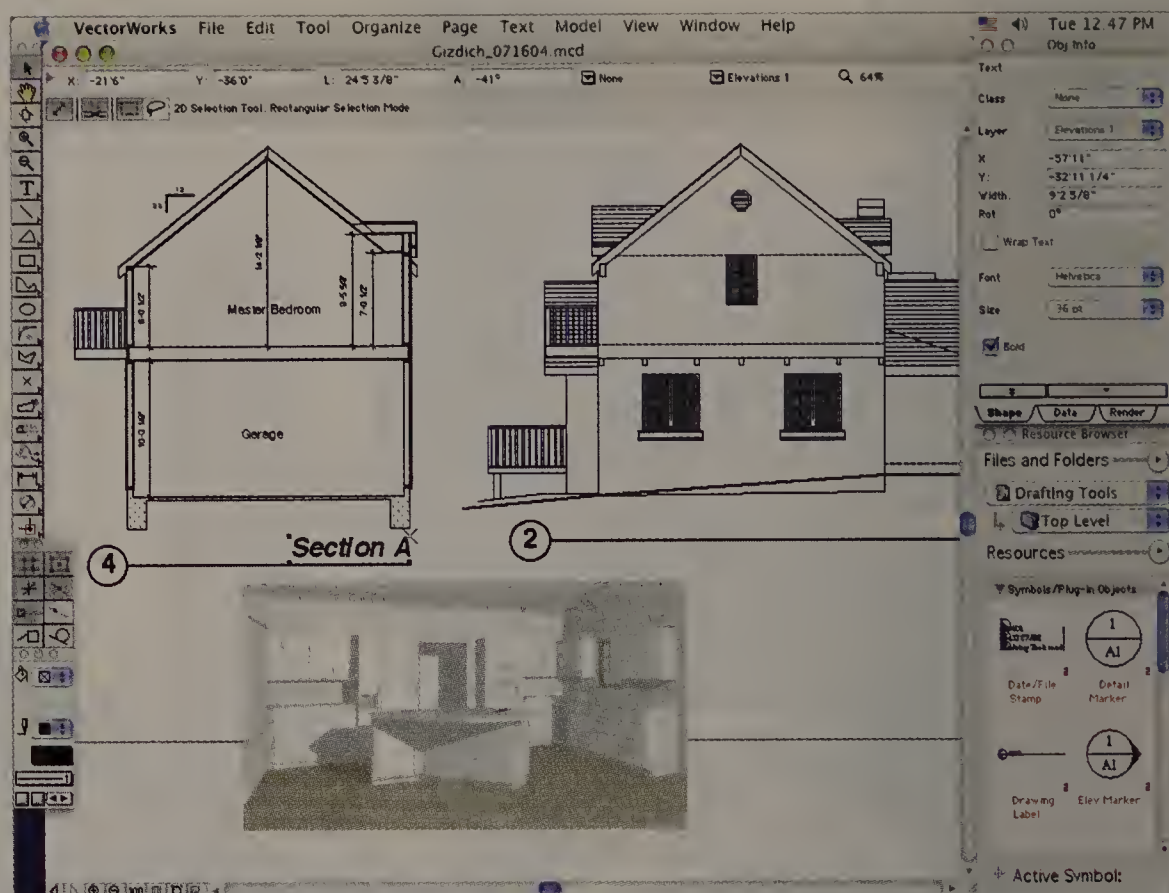
BY GREG MILLER

VectorWorks, a 2-D and 3-D CAD (computer-aided design) staple for architecture, design, and engineering pros, is proof that you don't have to run Autodesk's AutoCAD on a PC to be taken seriously as a designer. VectorWorks 11 sports a wealth of productivity improvements and key new capabilities that align it more closely with AutoCAD, the industry leader.

Productivity and Drafting

Nemetschek, VectorWorks' developer, has added a wealth of productivity and drafting enhancements. Users will appreciate the attention to detail shown in this upgrade, as it will make day-to-day drafting tasks significantly easier.

First, the much-improved Trim and Split tools give you more control over trimming and/or splitting complex shapes and polylines with other objects, such as lines. I also like the Resource Browser's new feature that allows you to quickly apply symbols to a drawing with a simple drag and drop. An



Viewing Variety VectorWorks 11 can show multiple drawings in a single view.

improved text interface now lets you change the font, point size, style, alignment, and spacing of any text block right in the Object Info palette, instead of requiring multiple selections from the Text menu, as previous versions did.

Presentation, Rendering, and 3-D

VectorWorks 11 features valuable additions that give you more 3-D presentation options. For example, a new Artistic Rendering mode allows you to apply artistic effects to your 3-D renderings, giving them a warmer,

THE CONQUEST

DiskWarrior is Now OS X Native

It's the indispensable utility that repairs problems such as disks that won't mount, files you can't trash, and folders that have disappeared. MacUser magazine said, "It's the fastest and safest data recovery utility you can buy."

Macworld magazine said, "DiskWarrior is by far the best disk utility available for the Mac; it can repair virtually any disk problem you may

encounter...and it is likely to become the only tool you'll want to keep with you at all times."

David Coursey, ZDNet AnchorDesk, agrees in an article comparing disk utilities. He used it to fix a disk that no other utility could. "DiskWarrior is a great product, not just because it fixed a pretty serious screw-up, but because it showed me what it planned to do in minute detail before doing it."

But disk damage isn't the only threat to your data. As hard drives get older, the drive mechanisms

THE UTILITY COMPANY

ALSOFT

Phone: 1-800-257-6381 Fax: 281-353-9868 Email: sales.info@alsoft.com Web Site: www.alsoft.com

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hand-drawn feeling similar to effects produced with Adobe Photoshop plug-ins.

VectorWorks 11 also comes with hundreds of new textures, including wood, stone, metals, fabrics, and an extensive collection of linoleum floor and wall coverings. You can simply drag and drop textures onto your 3-D model and then position, resize, and rotate them in real time without having to search for a specific dialog box.

The best new presentation addition to VectorWorks, however, is QuickTime VR. VectorWorks 11 includes an easy-to-use, built-in QuickTime VR generation tool for both panoramas and objects. QuickTime VR panoramas allow you to view your model from a single point and rotate 360 degrees. QuickTime VR objects allow you to grab an object on the screen and spin it around to get multiple viewing angles. You can distribute the VR files via e-mail or Web sites; they're viewable with QuickTime on both Mac and Windows machines. Until now, only Graphisoft's ArchiCAD, a high-end CAD program, had this feature.

Viewports

VectorWorks' most significant improvement is the new Viewports, a page-layout feature that lets you set up sheets that show multiple views of the same model or drawing. Each view has an independent scale, orientation, rendering, layer, and class visibility setting.

These views are automatically updated when you change the master drawing.

Viewports can also show you different layer sets of a master drawing on the same sheet, without requiring that you physically separate layers that should remain aligned. For example, you may have aligned a first-floor layer and a second-floor layer, but you want to see both floors on the same sheet next to each other. Viewports lets you do this without moving them out of alignment. Viewports can contain separate annotations that give you detailed or enlarged plan views on the same sheet from the same drawing.

The Viewports feature is even more valuable because Viewports views are now maintained during import and export, using AutoCAD's native DWG format. And VectorWorks 11 supports AutoCAD 2004 formats and the sharing of 3-D data—including 3-D solids information. These enhancements let VectorWorks designers integrate seamlessly into project teams that use different CAD programs in Windows.

Wish List

While you can easily create a PDF file of any VectorWorks drawing, I'd like to see a more integrated approach to PDF that allowed you to batch-print multiple sheets and/or Viewports. This ability already exists in AutoCAD on the Windows platform.

I would also like to see VectorWorks integrate URL hyperlinks into drawings for both objects and text blocks. That would let users link to project Web sites, or specific Web-based product information, from within a drawing. It would also allow a VectorWorks drawing to serve as the central interface of a presentation, or of a working session containing multiple media formats such as images, virtual-reality views, and QuickTime movies.

Macworld's Buying Advice

If you're thinking about buying a CAD program, VectorWorks 11 should be at the top of your list. If you already own an older version of VectorWorks, the improved DWG translation and the new Viewports make the upgrade a wise choice. The other enhancements just add to VectorWorks' considerable value. □

RATING: ★★★★★

PROS: Improved Trim and Split tools; fast, easy Resource Browser; better text interface; excellent QuickTime VR presentation; Viewports' flexible views; good DWG translation.

CONS: Lacks batch-printing capability; no URL hyperlinks.

PRICE: \$995; upgrade, \$280

OS COMPATIBILITY: Mac OS X

COMPANY: Nemetschek, 410/290-5114, www.nemetschek.net

CONTINUES

begin to malfunction. Eventually, the malfunctions become so severe that the drive simply stops working. DiskWarrior can automatically test for hardware malfunctions, giving you the chance to back up your data before it's too late.

Be prepared. Don't wait until after you have a disk disaster to buy your copy of DiskWarrior. Bob LeVitus, aka Dr. Mac, said, "I feel naked without DiskWarrior." You can believe MacHome magazine when they said, "DiskWarrior is a quick, one-click solution to faster, more stable hard drives."



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REVIEWS

Portfolio 7

New Version Brings Ease and Flexibility to Image Management

BY GALEN GRUMAN

Whether you're a photographer, an illustrator, or another type of creative pro, managing a multitude of images, comps, and other client files can be a real challenge. For years, Extensis's Portfolio has offered a powerful, flexible tool for this task. And the latest release, version 7, includes several welcome improvements.

One of the handiest additions is the ability to create CDs containing image catalogs—either of thumbnails or of the images at their actual sizes—directly from the program. Portfolio gathers the necessary files, including the catalog and viewers, and burns them to a CD in one step. You can include Portfolio browsers for both OS X and Windows—a nice touch.

Smart Searching

Extensis has enhanced Portfolio's search capabilities with a feature called Smart Galleries. A Smart Gallery combines a search and a custom view, letting you display images that meet specific criteria (such as being for a particular client, updated in the past day, and derived from a digital camera) in the visual arrangement of your choice. My only quibble is that it takes too many steps to create a Smart Gallery: you must first save your search criteria, then create a gallery, and then control-click on the gallery to set it up as a Smart Gallery (see "Intelligent Searching"). Once set, Smart Galleries are automatic—just click on the gallery name, and Portfolio updates the search to show the latest matches.

Advanced Archiving

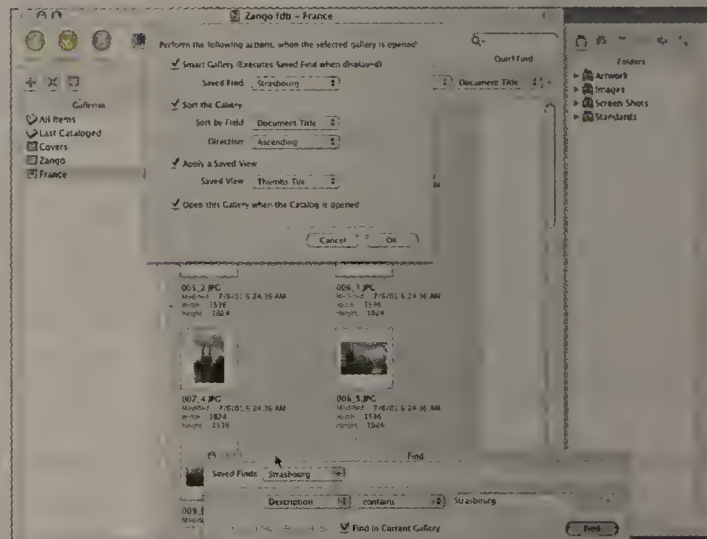
Portfolio 7 features a host of significant enhancements that support professional-level archival techniques. Watch folders, for example, are places where you can automatically catalog new assets by syncing folders on your hard drive or networks with Portfolio catalogs. The program can now convert images to TIFF or JPEG format and support additional types of digital-image information tags such as IPTC and XMP. The program also can now generate contact sheets and log who last modified an image. All of these improvements work well and are straightforward and convenient to use.

On the Net

Perhaps Portfolio's most promising—but also disappointing—new feature is NetPublish, a utility that lets you display gal-

leries on the Web for easy client review. The software includes several well-designed templates and an easy-to-use wizard to help you create your pages. You can also set NetPublish to work as an intranet. NetPublish is designed as a dynamic site utility that updates automatically as you add content to a catalog.

But the feature is optimal *only* if you host your own Web site using either Apache 1.3 on OS X or Internet Information Services on Windows. Even worse, NetPublish doesn't currently support users who have their sites



Intelligent Searching Portfolio's Smart Galleries feature uses your saved, customized search criteria to help you find groups of images.

hosted by third-party providers, usually on Unix systems. There is a workaround, but it poses a security risk. (The good news is that Portfolio does let you export static HTML pages for posting to any Web server.)

Further, NetPublish in Portfolio 7 allows only one user (actually, one IP address) to connect *each hour*; so even if you *do* meet the hosting requirements, you can't use NetPublish in a production environment unless you buy additional connection licenses (\$200 for the five-pack).

Macworld's Buying Advice

Portfolio 7 is a powerful cataloging and inventory tool, and a great way to organize your digital assets. It makes particular sense for small and midsize organizations that use a dedicated Mac for asset management. I prefer it to Canto's less flexible Cumulus 6 Personal Edition. If your organization is large, consider Canto's selection of enterprise image-management tools instead.

RATING: ★★★★★

PROS: Rich data about images; permits fine-tuned searches; custom views of image collections; allows easy distribution of image catalogs via CD.

CONS: NetPublish's limited Web distribution support; NetPublish requires extra licenses for production use; Smart Gallery creation is cumbersome.

PRICE: \$200; upgrade, \$100

OS COMPATIBILITY: Mac OS X

COMPANY: Extensis, 800/796-9798, www.extensis.com



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Digital Camera Link for iPod

Device Transfers Your Photos

BY JACKIE DOVE

If you've ever been on a photo shoot and despaired at the prospect of keeping multiple CompactFlash cards in order, conserving space on a card, or lugging your laptop around for storing images, Belkin's Digital Camera Link for iPod has your name on it. The Digital Camera Link is a specialized device that does one thing: it transfers photos from a digital camera to an iPod for storage until you can transfer them to your Mac.

The Digital Camera Link, powered by two AA batteries, is compact, lightweight, and easy to operate. Just connect your camera to the unit's USB port, connect the unit to your iPod, press a button on the unit, and then see the progression of your image transfer on its LED readout. In my tests, a roll of 88 images, totaling 101MB, transferred in 2 minutes and 46 seconds—more than twice as fast as with its predecessor, Belkin's Media Reader for iPod, which took 5 minutes and 19 seconds to transfer images from the same CompactFlash card. You can find the image roll number in your iPod's Extras: Photo Import menu.

Unfortunately, the Digital Camera Link's hardware requirements are bound to leave out a lot of potential users. To use it, you need both a camera that's compatible with it *and* an iPod with a dock connector. Belkin doesn't support using the Digital Camera Link with the iPod mini (though one *Macworld* editor reported using it successfully) or with any older-generation iPod. And it's compatible with only certain camera models in the Canon, Sony, Olympus, Hewlett-Packard, and Nikon lines. On its Web site, Belkin helpfully lists all the cameras the Digital Camera Link works with (www.belkin.com/ipod/cameralink/). But just as many cameras have not been tested and are not guaranteed to work with the device. I tried the Digital Camera Link on my Canon PowerShot G2, but it struck out. It did work, however, with an Olympus C4000 Zoom and a Nikon Coolpix 4300.

The Digital Camera Link works with mass-storage DCF- and PTP-compatible cameras. Mass-storage DCF and PTP are

methods by which image information is stored on and retrieved from a camera.

Macworld's Buying Advice

The Digital Camera Link for iPod is handy for clearing out your camera's CompactFlash cards and tucking your images safely into your iPod until you can get them into your Mac. If you have an iPod with a dock connector and a compatible camera, then shoot away. □

RATING: ★★★

PROS: Expands the iPod's functionality; lets you store photos easily.

CONS: Limited camera support; not officially compatible with the iPod mini.

PRICE: \$90

COMPATIBILITY: iPod with dock connector

COMPANY: Belkin, 800/223-5546, www.belkin.com

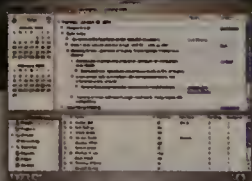


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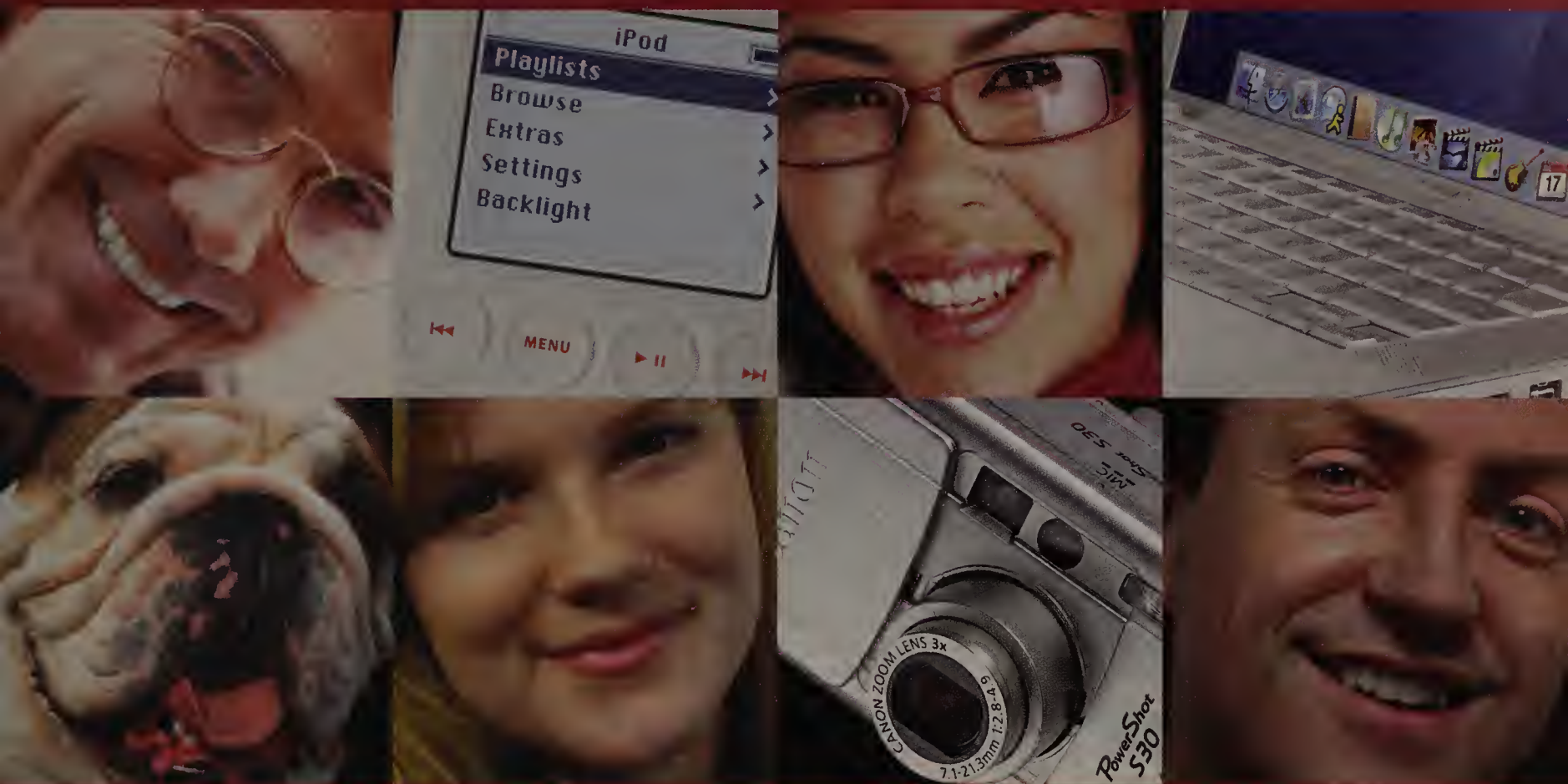
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Magic Bullet Editors 1.0

Final Cut Pro Plug-in Creates Magical Film Effects

BY ROBERT ELLIS

If you want to impart a filmlike quality to your digital video, Red Giant Software's Magic Bullet Editors, a special-effects plug-in for Final Cut Pro, may help you realize your vision.

Magic Bullet Editors includes Look Suite, the color-correction controls of its After Effects sibling, Magic Bullet Suite (♦♦♦♦; April 2003), and it includes Misfire, a new tool for creating realistic film-damage effects. These effects are impressive, but rendering times are painfully slow.

Look Suite offers controls that let you create film "looks" like those seen in popular movies. Drop a preset on your clip, and instantly you've got anything from the soft,

colorful look of *Amelie* to the bleached, contrasty look of *Saving Private Ryan*. There are 50 preset looks, including basic effects (such as Warm and Cool) and presets that emulate the look of your favorite film. Look Suite lets you tweak the look of your footage endlessly. Twenty-five controls let you prep your video, emulate lens filters and various film stocks, and balance the final image. All controls are keyframable, so you can vary the effects over time. You can select and deselect individual sections to isolate the effects.

Misfire helps you rough up your video to create an aged look. There are 13 Misfire filters, including Dust, Grain, Scratches (basic, micro, and deep), Splotches, and Vignette. Misfire can also simulate projection artifacts such as flicker and gate weave, the distinctive side-to-side shakiness of ancient flicks.

While you can approximate *some* of these effects with Final Cut Pro's built-in filters, Magic Bullet Editors offers finer control and richer, more professional-looking results. But you'll need a fast Mac. On my dual-800MHz G4 with 1.25GB of RAM, rendering a 30-second clip took more than 15 minutes. Adding Misfire prolonged rendering. Fortu-



Looks Sweet The right half of this video has been treated with the Warm & Fuzzy effect, one of 50 presets included with Look Suite.

RATING: ♦♦♦♦

PROS: Shortcut to your favorite film looks; good set of film damage effects; works within Final Cut Pro.

CONS: Slow rendering; sluggish performance.

PRICE: \$299; download, \$279

OS COMPATIBILITY: Mac OS X

COMPANY: Red Giant Software, 260/625-5343, www.redgiantsoftware.com

nately, unlike with Look Suite, you can apply Misfire as a single filter or apply each effect as an individual filter; this minimizes the performance hit. Red Giant says that the tools are accelerated for the G5, and that performance and rendering times should be substantially faster on a G5 than on older hardware.

Macworld's Buying Advice

Magic Bullet Editors 1.0 is the perfect tool for achieving a stylish film look or an authentic-looking "classic." Just make sure your hardware is up for some heavy lifting. □

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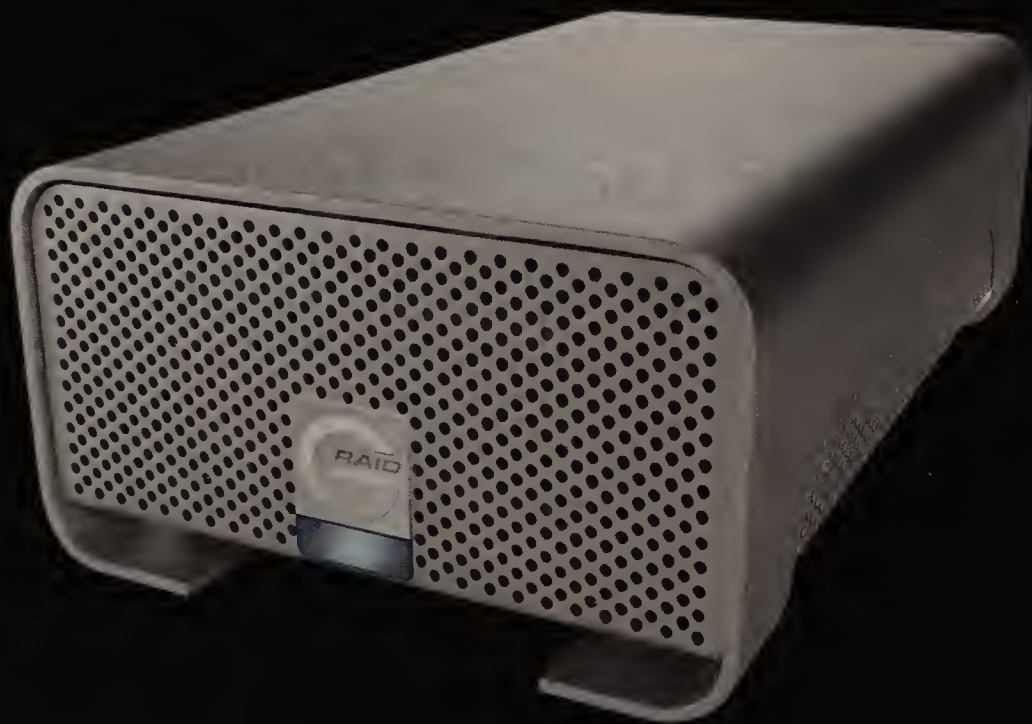


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The Game Room

Boy, running your own space colony sure is a lot of work. There are aliens to fend off, minerals to collect, and grumpy employees who'd rather sleep than repair the force field. For detail-oriented gamers, Aspyr Media's Space Colony—a new strategy game that lets you control almost every aspect of your very own intergalactic mining town—offers the ultimate in micromanagement.

Space Colony makes you balance two different levels of management, each of which could be a game within itself. On the one hand, you're responsible for the day-to-day operations of a colony in outer space—managing the collection, refinement, and use of resources. On the other hand, you're manipulating the interpersonal relationships of the people who inhabit your station, as in *The Sims*. It's an interesting—although ultimately unsatisfying—combination of challenges. In trying to offer both, the game ends up missing what's most fun about each genre.

Space Colony starts out by giving you a series of goals—for example, raising money or building a certain number of structures. To carry out your goals, you'll need to assemble a crew from the residents of your colony. The colonists need to be happy, healthy, and active in order to thrive and do their jobs well. If they're too unhappy, they may refuse to help. The key to success is to find colonists who are good matches for both their jobs and their surroundings, and then to make sure they're taken care of.

In addition to a regular mode, which gives you no control over your assignments, the game includes a Galaxy mode, which lets you specify a strategic



Sims in Space Space Colony lets you stoke your God complex while fending off invading aliens.

interest—for example, a military or an economic focus—and then assigns missions based on that interest.

The game gets progressively more difficult as you play. Each success leads to larger, more-complex missions, which in turn require larger crews. Hostile aliens occasionally buzz in and start zapping your colony, so you need to build force-field generators, laser towers, and

the like. Not all tasks are fun, and you sometimes have to make the colonists do things they don't want to, which seriously affects both their mood and their job performance.

Space Colony renders its graphics in a fixed isometric (or three-quarters) view. It's effective but looks a couple of years old—especially considering the current prevalence of OpenGL 3-D graphics. Space Colony's techno soundtrack and repetitive voice samples grated on my nerves after a while; fortunately, you can turn them down or off.

In case you don't want the responsibility of managing colonists or completing missions, the game also offers a Sandbox mode, which lets you focus on simply building your mining colony. It essentially turns the game into a construction set. It's a fun intellectual exercise, but it's the least satisfying option in terms of game play.

You'll need a 733MHz G4 or better running Mac OS X 10.3. The game doesn't offer a multiplayer mode—but, then again, there's little need for one.

The Bottom Line The combination of simulation and strategy gaming offers some interesting possibilities that Space Colony doesn't fully exploit. As a result, it doesn't completely satisfy on either level.

continues

SPACE COLONY

RATING: ★★★

PROS: The combination of managing resources and personnel offers some new challenges; Sandbox mode lets you focus on building.

CONS: Isometric graphics engine looks quaint; soundtrack becomes annoying.

PRICE: \$30

OS COMPATIBILITY: Mac OS X

COMPANY: Aspyr Media, www.aspyr.com

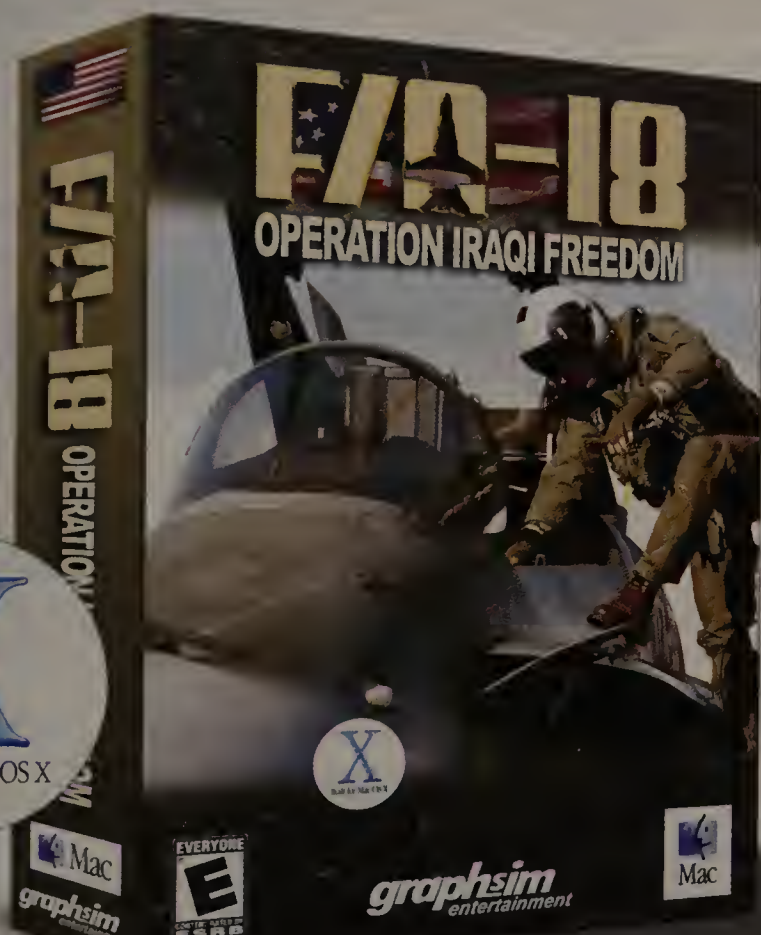
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THE GAME ROOM

Hit the Road

Total Immersion Racing, by Feral Interactive, puts you behind the wheels of more than a dozen real-world, licensed racing cars—including models by Audi, BMW, McLaren, and Panoz—as you climb your way to the top of the GT-racing circuit. Your career will take you to some of the best-known tracks in the world, such as Monza and Sebring, as well as a few imaginary tracks. But you'll need to win—and keep winning—to unlock all of the cars and tracks the game has to offer.

Total Immersion Racing is more of an arcade game than a simulation. The game's physics engine will probably disappoint racing purists. Despite an extensive setup process, my cars responded with unrealistic ease when drifting through turns or braking. This did make them more manageable, however, and will probably help new drivers get up-to-speed quickly.

The game's AI is uncommonly good. The drivers in other cars actually remember when you cut them off—or drive them off the road completely—and they'll take you to task for such behavior the next time you're out. This is a nifty way of making sure that you drive as carefully as you can. The game also does a beautiful job of rendering cars. Each vehicle glistens in the



Full Throttle Total Immersion Racing lies somewhere between arcade action and vehicle simulation.

TOTAL IMMERSION RACING

RATING: ★★★★★

PROS: Great graphics; winning unlocks new cars and tracks.

CONS: Unrealistic physics engine; no network gaming.

PRICE: \$45

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Feral Interactive, www.feralinteractive.com

game's sunlight and kicks up realistic dirt, dust, and debris from the tracks.

The game doesn't support online competition—network latency is a killer in such fast-paced games—but it does let you go head-to-head against someone seated at the Mac beside you with a second game controller.

Kudos to Feral for offering a game that still runs in OS 9. But the company's minimum system requirements—a 500MHz G3—may be a little optimistic. It was just barely playable on my 800MHz G4 PowerBook running OS X. For optimal performance and reliability, be sure to download the latest patch from Feral's Web site.

The Bottom Line Total Immersion Racing effectively straddles the line between simulation and arcade racing. Although it may disappoint players looking for a true racing experience, the game offers plenty of good fun.

Check, Mate

If you're a chess fan and you're not already playing Big Bang Chess, a free offering from Freeverse Software, open your Web browser and download it right now. Seriously.

continues

BIG BANG CHESS

RATING: ★★★★★

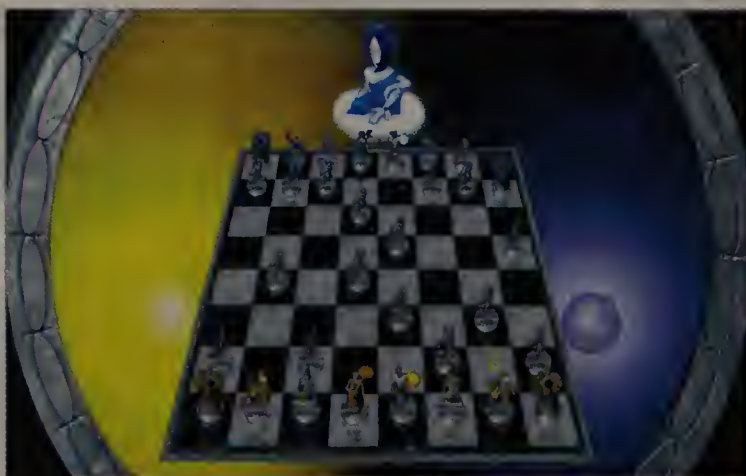
PROS: Beautiful graphics; great support of Apple technology.

CONS: No customization for AI skill level; no GameSmith support.

PRICE: Free

OS COMPATIBILITY: Mac OS X

COMPANY: Freeverse Software, www.freeverse.com



Calling Bobby Fischer Freeverse's stellar Big Bang Chess is a fun—and free—3-D chess game that you should check out.

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LIFE STOOD STILL FOR 13 MINUTES. History changes in an instant. Never more so than in *Rise of Nations*, a new real-time strategy game from Brian Reynolds, lead designer of *Civilization II*. Experience the depth of turn-based strategy games at an RTS pace through 6,000 years of history and 18 ancient nations. It's the most intense RTS of its kind. Think fast. Fight faster. Defend, defeat, bargain, befriend, plot and plunder. Do it all under the gun with zero margin for error. Nothing is historically impossible, and only the quick and the brazen survive.

RISE OF NATIONS



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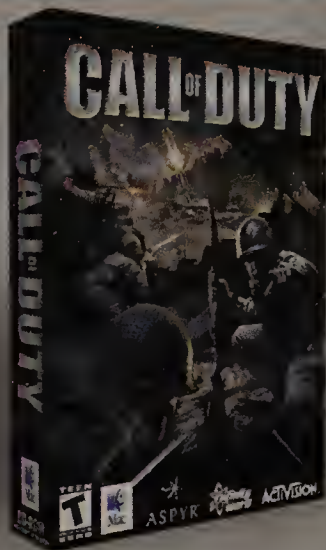


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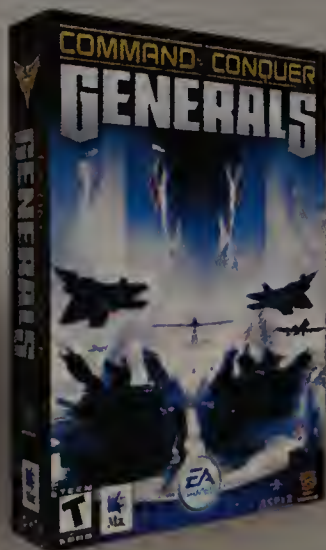
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THE GAME ROOM

Big Bang Chess, which won two Apple Design Awards at this year's Worldwide Developers Conference, is a 3-D chess game that lets you take on the computer or live players. The game provides plenty of luscious eye candy, including pretty reflections, particle effects, and animations. More important, it offers built-in support for Apple's i-apps. You

can use iChat to start a game with a friend, for example, or fire up your favorite iTunes playlist for background music. You can also play via e-mail with friends and colleagues who aren't online at the same time as you. Big Bang Chess supports Rendezvous, Apple's zero-configuration networking technology. *continues*

On-the-Go Gaming

Palm OS-based PDAs are a great way to stay organized while you're on-the-go, but they've never been ideal for gaming—until now. Tapwave's Zodiac gaming console is a PDA with a distinct flair for letting loose. In addition to running most of the programs compatible with Palm OS 5, the device includes 3-D-graphics hardware, which lets you play sophisticated games such as Tony Hawk's Pro Skater 4.

The Zodiac features a beautiful 480-by-320-pixel screen that renders thousands of colors and crisp 3-D graphics. It's Bluetooth-ready, has two slots for Secure Digital (SD) media cards, and comes equipped with an analog thumbstick (a thumb-activated joystick similar to the interface of a game-console controller), which vibrates in response to the on-screen action. The console is available in two flavors: the Zodiac 1, which includes 32MB of internal storage, and the Zodiac 2, which has 128MB.

If you're accustomed to a run-of-the-mill Palm PDA, the Zodiac will be a horse of a different color. First of all, you hold it sideways. Within easy reach of your left thumb are the thumbstick, the power and home buttons, and a function button whose purpose changes from game to game. On the right side is a cluster of four action buttons. A stylus, for use when you're running normal Palm software, clips to the back. The console includes built-in stereo speakers and a headphone jack.

The Zodiac connects to your Mac via Bluetooth or a USB cable. However, as with many current PDAs, you'll need Mark/Space's The Missing Sync software (\$40; www.markspace.com) to transfer files to and from your Mac. With The Missing Sync installed, you can drag and drop purchased games to the Zodiac and upload high scores back to Tapwave's online service. The Missing Sync also lets you import iTunes music and iPhoto images, share your Mac's network connection with the Zodiac, and even mount the Zodiac's SD cards on your desktop.

You can purchase games and other software at Tapwave's online store. There's a fair selection of stuff to keep you busy—including classics such as Doom II and Duke Nukem, and the 3-D version of SpyHunter. All the games I tried

worked great, with the exception of a few Sega-branded games that appear to be emulating Sega's Genesis console. Even some classic arcade games I bought from Handmark, a PDA game retailer, ran much more smoothly on the Zodiac than they did on my aging Palm IIIc. Tapwave also promises that by the end of 2004 it will offer at least ten new original titles.

The Zodiac tends to chew through a battery charge. If you're playing a game that vibrates the thumbstick or if you're competing with another Zodiac gamer via Bluetooth, the battery will probably last only a few hours before it runs out of juice. To squeeze more life from it, you can tweak the screen's brightness, turn off Bluetooth, and nix vibration in most games. It takes about two hours to fill up the built-in rechargeable battery when its tank is completely empty—and twice that long if you can't keep your hands off the Zodiac while it's juicing up.

The Bottom Line If you want a handheld gaming system that also functions as a PDA, look no further: the Zodiac is the device you've been looking for.

Portable Pleasure Tapwave's Zodiac is part gaming console, part PDA, and all fun.



TAPWAVE ZODIAC

RATING: ★★★★★

PROS: Extremely versatile handheld gaming device; supports Bluetooth.

CONS: Short battery life; requires an additional \$40 program to work with the Mac.

PRICE: 32MB Zodiac 1, \$299; 128MB Zodiac 2, \$399; The Missing Sync software (for Mac compatibility), \$40

OS COMPATIBILITY: Mac OS X

COMPANY: Tapwave, www.tapwave.com

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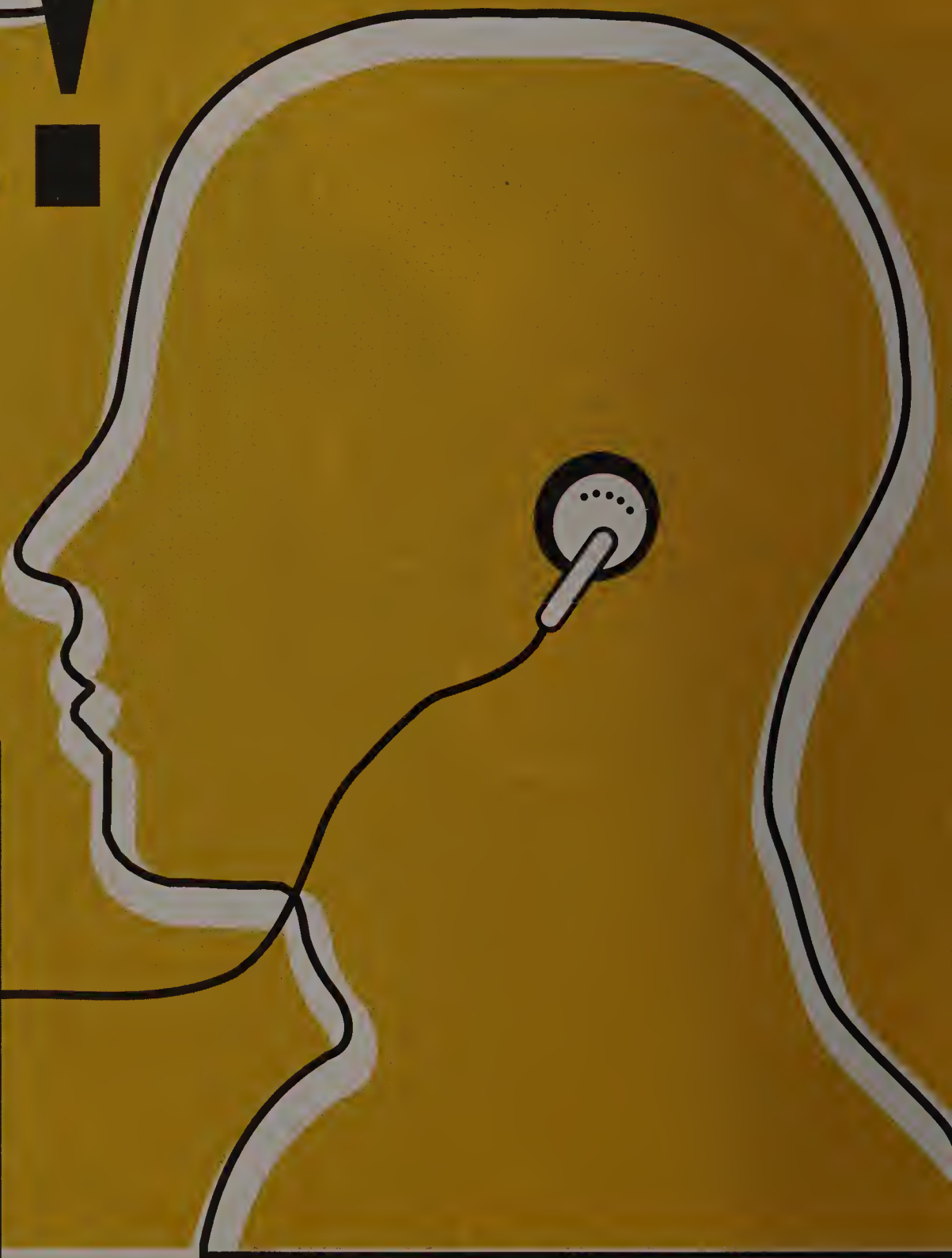
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ogy, so finding local network games is easy. But since Big Bang Chess lacks support for GameSmith, Freeverse Software's game-finding service, there's no easy way to pick up a quick game with other online players.

The game's built-in AI may not sufficiently challenge proficient chess players. Unfortunately, there's no way to adjust its skill-level settings to better match your abilities.

The Bottom Line Apple should include Big Bang Chess on all shipping Macs. Despite a few flaws, this 3-D chess game is stellar—especially considering its price.

War Zone

There's certainly no shortage of World War II-themed first-person shooters on the Mac. But if you crave online mul-

tiplayer action, none of them holds a candle to Aspyr's Battlefield 1942 Deluxe Edition.

If you've played Halo or Unreal Tournament 2004, you've already gotten a taste of what Battlefield 1942 offers. In fact, when it was originally released for Windows in 2002, Battlefield 1942 introduced many of the features that have since made these games such hits—including vehicle control and expansive outdoor maps.

Battlefield 1942 lets you play as either Axis or Allied (American, German, British, Russian, or Japanese) soldiers in 16 different battles from World War II. However, your nationality is largely window dressing; each side's weapons and vehicles are more or less evenly continues



FIRST LOOK | Rise of Nations

MacSoft will soon release a new, real-time strategy game called Rise of Nations, which should appeal to fans of Civilization II and Alpha Centauri.

In Rise of Nations, you're the leader of a modest empire. As in most strategy games, your job is to expand your empire's borders while ensuring that your citizens are well cared for. Your nation's borders are determined by the size of its cities, and you can build only within your borders, so you'll need to be strategic about how and when you build new cities. Rise of Nations also requires that you manage

resources adequately, fund research into new military technologies, and develop your civilization's civil, commercial, and scientific endeavors.

However, there's a lot more to the game. You'll also have to combat other empires as you come into contact with them—raising armies, using technology to overwhelm your opponents, and capturing your foes' territories. Scenarios change depending on which territories you're holding, so there's a lot of variability to the game play.

Rise of Nations' historical scope runs from the Dark Ages straight through to the Information Age, so you'll have plenty of time to develop the resources you need in order to come out on top. But there's short-term gratification, too—you can usually complete a mission within an hour.

Although the centerpiece is the single-player Conquer The World mode, the game



Manifest Destiny Expand your nation's borders by building larger cities in Rise of Nations.

also offers a multiplayer option, called Quick Battle, which lets you challenge other online players to short skirmishes.

MacSoft should be ready to release Rise of Nations by the time this issue reaches you.

The Bottom Line Rise of Nations combines the things I've come to love about real-time and turn-based strategy games, and the result is a new and unique take. It's sure to please gamers from both camps.

BETA TESTED

RISE OF NATIONS

PROS: Interesting blend of strategy elements; varied game play.

CONS: No single-player storyline.

PRICE: \$50

OS COMPATIBILITY: Mac OS X

COMPANY: MacSoft,
www.macsoftgames.com



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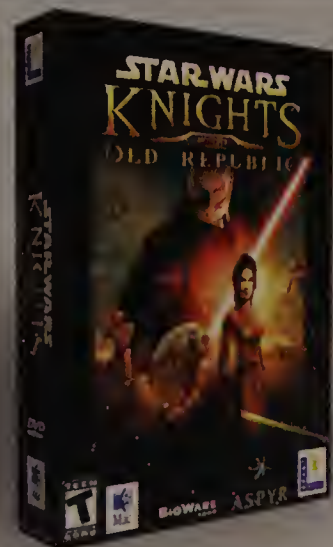
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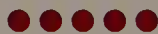
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matched. At the beginning of the game, you choose a specialty—for example Medic, Engineer, or Sniper. Each specialty has its own abilities (medics can heal the wounded, for example). But *Battlefield 1942* doesn't lock you in—you can switch careers after being killed. So if your team needs another sniper instead of a medic, you can oblige. *Battlefield 1942* requires strategy as much as it requires a quick trigger finger. So finding other teammates with decent skills is part of the challenge, and you'll be rewarded for developing those skills yourself.

You can command almost three dozen different vehicles, including a B-17 bomber and armored tanks. Many vehicles also support multiple positions—you can be the gunner or the driver, for example. Maneuvering an M3 half-track armored vehicle filled with troops around the battlefield is certainly fun—but it's also surprisingly challenging. And since each vehicle handles differently, it's important to match the vehicle and the mission to the task at hand. You may fill up an armored personnel carrier with troops only to find that you're the target of an air strike.

The game supports as many as 64 cross-platform combatants, making for some fierce online game play. There are several multiplayer modes, including Death-



Time Traveler You can take on the Nazis with historically accurate weapons and vehicles in *Battlefield 1942* Deluxe Edition.

BATTLEFIELD 1942 DELUXE EDITION

RATING: ★★★★★

PROS: Huge online battles; good support for vehicles; includes expansion pack.

CONS: Skippy single-player mode.

PRICE: \$50

OS COMPATIBILITY: Mac OS X

COMPANY: Aspyr Media, www.aspyr.com

match, Capture The Flag, and Conquest. Although there is a single-player campaign, it's not nearly as satisfying as the multiplayer options. If you're looking for a World War II-era shooter with a very strong storyline, I'd recommend Aspyr's *Call of Duty* instead.

To compensate for the fact that *Battlefield 1942* is so late in coming to the Mac, Aspyr has packaged the game as a Deluxe Edition. The game includes *The Road to Rome* expansion pack, which was originally sold separately for the PC version. While the theaters of war in *Battlefield 1942* cover locations throughout the world, *The Road to Rome* specifically covers events in Italy, as Allied forces made their way through Sicily and up the boot through Anzio and Monte Cassino. The expansion pack adds new vehicles, fighting forces, and weapons, as well as other changes to the original game.

To install and play *Battlefield 1942*, you'll need an 867MHz G4 or faster with a DVD player, and an ATI Radeon 7500 or Nvidia GeForce 2 graphics card or better.

The Bottom Line *Battlefield 1942* has taken a very long time to come to the Mac. But for online gamers looking for something they can really sink their teeth into, the game has proved to be worth the wait.

MacCentral.com Senior Editor PETER COHEN is handily beaten at chess by his nine-year-old son—which is a testament either to his son's skill or to Peter's mediocrity.

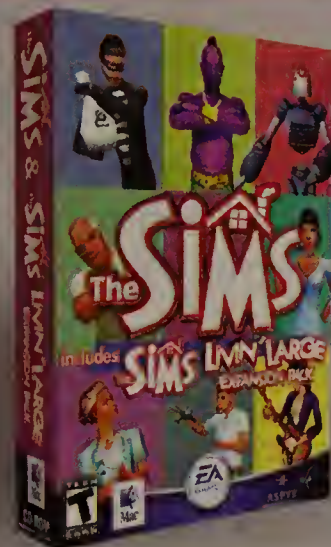
Recently Reviewed

SHREK 2: THE GAME

★★★★; Aspyr Media, www.aspyr.com; \$30

Aspyr Media's *Shrek 2* (which I previewed in the August 2004 issue) is a third-person action-adventure game based on the blockbuster movie by the same name. In the game, you get to take on the roles of Shrek and his friends as you make your way through the kingdom of Far, Far Away—and other locales seen in the movie—to rescue the big green ogre's new bride, Princess Fiona.

Shrek 2 is strictly casual fare—the graphics are relatively bland, and the action, including platform hopping, rope climbing, and basic brawling, is nothing I haven't seen in a hundred other games. Still, it's fun and family-friendly, so your whole gang can relive some of the movie's entertaining moments.



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Mac Gems

I occasionally cover hardware products in this column, but this month I'm dedicating the entire two pages to some of my favorite Mac hardware gems. We'll start with a supercharged battery for the iPod.

There's been a lot of talk about the iPod's battery life—some of it legitimate and some of it overblown. What matters is that for some of us, the iPod's standard 8 or 12 hours of battery life just isn't enough. If you're in this group, check out the new \$100 **iPod Battery**, from Battery Technology (★★★★½; www.batterytech.com).

This rechargeable lithium-ion battery pack for iPods with a dock connector significantly lengthens your iPod's playback time. The company claims that you'll get as much as 40 additional hours of music. But when I connected the fully charged iPod Battery to my dead iPod mini, enabled repeat mode, and then pressed play, my iPod mini was still playing 90 hours—yes, 90—later. Granted, I wasn't skipping tracks frequently or using the backlight, both of which use battery power more quickly, but I suspect that even with such activities, you'll get much more than the advertised 40 hours of battery life. (And my mini is full of 160-Kbps AAC files; if you rip your CDs using the stock 128 Kbps that is iTunes' default setting, you may get better results, since the iPod's battery-saving cache can hold more music at lower bit rates.)

You connect the iPod Battery to your iPod's dock connector; for people who don't have an iPod case, the iPod Battery comes with clip-on plastic cradles that hold any compatible iPod, including the mini, snugly against it. (This is almost necessary, as the cable is fairly short. I would have liked the option of a longer cable so I could keep my iPod and the iPod Battery separate in my travel bag.) Like all external battery packs, the iPod Battery can't charge your iPod—it only provides power. But I haven't seen another accessory that lets you stray farther—or stay away longer—from an AC outlet or FireWire port.

Piggyback Battery Battery Technology's iPod Battery lets you listen to your music for a long, long time.

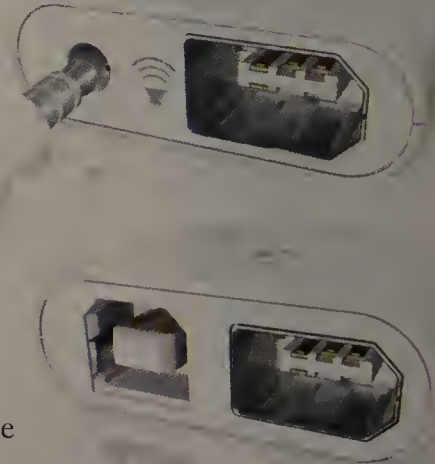
Pocket Dock, Redux

Speaking of iPods—in previous columns I've covered SendStation's PocketDock (★★★★; January 2004), a tiny adapter that plugs into your iPod's dock-connector port and provides you with a standard FireWire port, and SiK's imp (★★★★; March 2004), which provides both a line-level audio-output jack and a FireWire port via a cable that plugs into the dock port. SendStation has recently released the new \$30 **PocketDock Line Out** (★★★★½; www.sendstation.com), which combines the best features of both of the aforementioned products. Like the imp, it provides a line-level audio-

output jack and a FireWire port for charging and syncing your dock-connector iPod via any standard FireWire cable; however, like the original PocketDock, it provides these connections via a tiny adapter that plugs into your iPod's dock slot. As a nice bonus, it includes two audio cables—a 1/8-inch mini-to-mini and a mini-to-RCA (left-right)—so you can connect your iPod to almost any stereo system or amplifier.

SendStation has also released the \$23 **PocketDock Combo** (★★★★½), which replaces the Line Out's line-level output with a USB port, so you can sync all dockable iPods and charge all Click Wheel iPods and iPod minis via USB. (You can also charge and sync any dockable iPod via the Combo's FireWire port.)

To make room for the extra ports, the two new PocketDock models are slightly wider and thicker than the original (which was the same width as Apple's dock-connector cable); as a result, some iPod cases that have holes for Apple's dock cable won't accommodate the new PocketDocks. But



MiniDocks USB, FireWire, audio—there's a PocketDock for you.



(actual size)

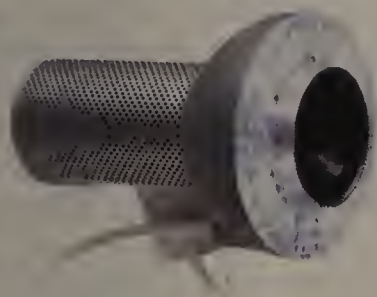
Let me take you on a trip...

Quick, where do you most often listen to music? In your car, right? The easiest way to enjoy all of that music in your car is the Griffin iTrip mini. Snap iTrip on your iPod mini and suddenly your music is filling up your next road trip, daily commute or business trip - right through the built-in FM stereo of any car. Buy an iTrip mini for your iPod mini and your favorite song will always be on the radio.

iTrip mini FM Transmitter for iPod mini

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- iTrip mini automatically turns itself on when needed and off after 60 seconds of silence



SightLight FireWire Light for iSight

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- Custom-designed Fresnel-based lens diffuses light to even out shadows
- Auto setting automatically senses the amount of ambient room light and adjusts its output accordingly
- Shares the iSight's FireWire connection



iTalk Voice Recorder for iPod

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- Turn your iPod into a digital voice recorder with thousands of hours of recording time
- Automatic Gain Control assures the best possible signal level for recordings
- Features internal microphone and built-in laptop quality speaker for playback
- Connect an external microphone or even headphones to the built in pass-through mini jack connection on top



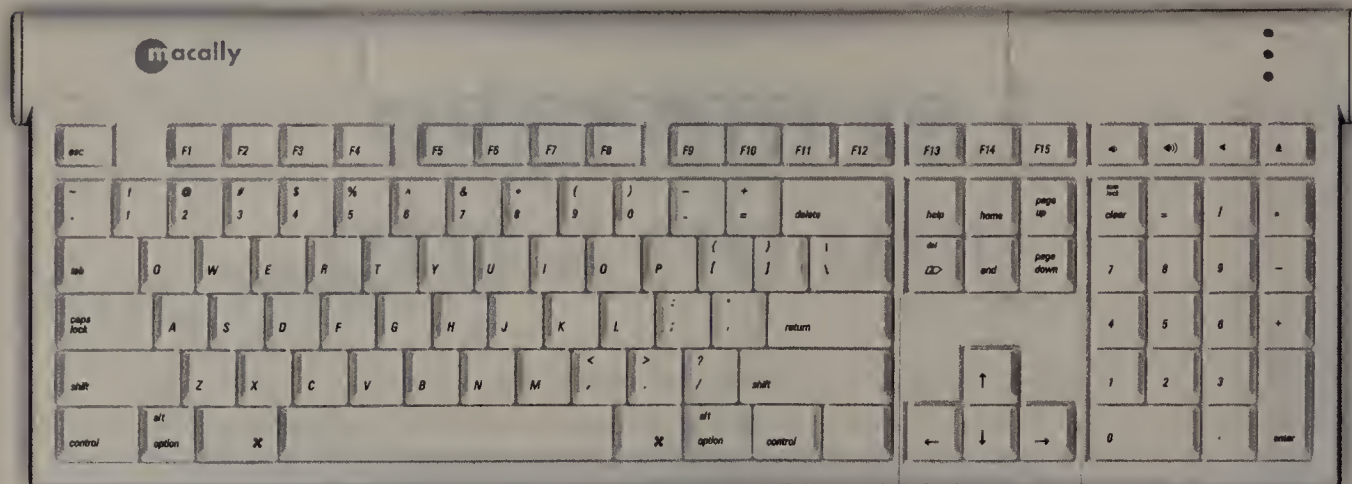
iMic USB Audio Interface

\$39⁹⁹

- Record your old records and tapes to play in iTunes, put on your iPod, or burn to CDs
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Laptop-Desktop
Macally's IceKey gives your desktop Mac a PowerBook feel.

apart from that, the PocketDock line of adapters is perfect for people who want a compact way to increase iPod connectivity.

Comfortable Keys

Over the past ten years or so, keyboards for desktop Macs seem to have gotten steadily worse—compare the stellar Extended Keyboard II, which had excellent tactile response and a sturdy build, with the keyboards shipping with most late-model Macs. At the same time, laptop keyboards are getting better and better. I actually prefer typing on my PowerBook to using the mushy keyboard that came with my Power Mac.

While some vendors have tried to resurrect the keyboards of yesteryear—for example, Matias, with its excellent \$100 Tactile Pro Keyboard (www.halfkeyboard.com)—Macally has taken the opposite approach: If today's laptop keyboards are so good, why not make a desktop keyboard that feels more like a laptop's? The \$60 **IceKey** (★★★★½; www.macally.com) puts the same Scissor-Key-Switches found in today's best laptop keyboards in a low-profile, white desktop model complete with two USB ports and a full complement of 108 keys. It even provides volume-up, volume-down, and mute buttons, as well as an eject key, just like Apple's own keyboards. The laptop-like keys provide good feedback, and you don't have to press them down too far, making the IceKey ideal for touch typists and gamers. And if you frequently switch between a laptop and a desktop Mac, the IceKey lets you avoid the tactile transition—often filled with errors—from typing on a laptop to using a desktop keyboard.

FireWire Regression

Apple's high-end, professional systems—such as the Power Mac G5 and the aluminum PowerBook G4—have built-in FireWire 800 ports. The problem is that many of us don't own any FireWire 800 peripherals—we're still using old, slower FireWire 400 drives and scanners, so these FireWire 800 ports are going to waste. Before you spend a few hun-



Back to the Future
Sonnet and WiebeTech want to make sure that you can use your FireWire 400 peripherals with any FireWire port.

dred bucks on a new drive—or at least until you can afford to do so—you can use your FireWire 400 peripherals with your FireWire 800 port, via Sonnet's \$15 **FireWire 800 Adapter** (★★★★; www.sonnettech.com). One end plugs into your FireWire 800 port, and the other

provides a standard FireWire 400 connection; your FireWire 400 hard drive won't suddenly acquire FireWire 800 speed, but at least you'll be able to use it.

On a desktop Mac, you might find that the Sonnet adapter protrudes a bit too much, or that your FireWire cables are putting a lot of pressure on the adapter (and the FireWire 800 port). If that's the case, WiebeTech's \$20 **FireWire 9-6** cable (★★★★; www.wiebetech.com) is the solution. Like Sonnet's FireWire 800 Adapter, it lets you use FireWire 400 devices with your FireWire 800 ports. The difference is that the FireWire 9-6 is a stand-alone cable—one end plugs into your FireWire 800 port, and the other plugs into a FireWire 400 peripheral. It's available in 1.5- and 3-foot lengths. Either of these inexpensive adapters can quickly increase your Mac's connectivity.

Helping Handeze

If you type enough to care how your keyboard's keys feel, you probably type enough to have experienced some pain or discomfort due to that repetitive activity. I used to have similar issues, but then a friend recommended Handeze's \$20-per-pair **Fingerless Therapeutic Gloves** (www.handeze.com). Designed to reduce the pain and discomfort that repetitive motion can cause in your fingers and hands, the gloves support your hands and keep them warm as you type. Of course, all bodies are different, so Handeze's gloves may not work for everyone, but they definitely work for me. When I don't wear them, my hands often become sore after 10 to 15 minutes of typing; with them, I can type for much longer.

The Fingerless Therapeutic Gloves won't cure severe repetitive stress injuries, and they're no substitute for regular breaks and stretching. But they're worth a try if you have mild discomfort. I don't touch the keyboard without them, and I know more than a few Mac writers who have the same policy. □

Contributing Editor DAN FRAKES (www.danfrakes.com) is the author of *Mac OS X Power Tools*, second edition (Sybex, 2004) and an editor at MacFixIt.com. Send your thoughts on this column, or on things you'd like to see in future columns, to macgems@macworld.com



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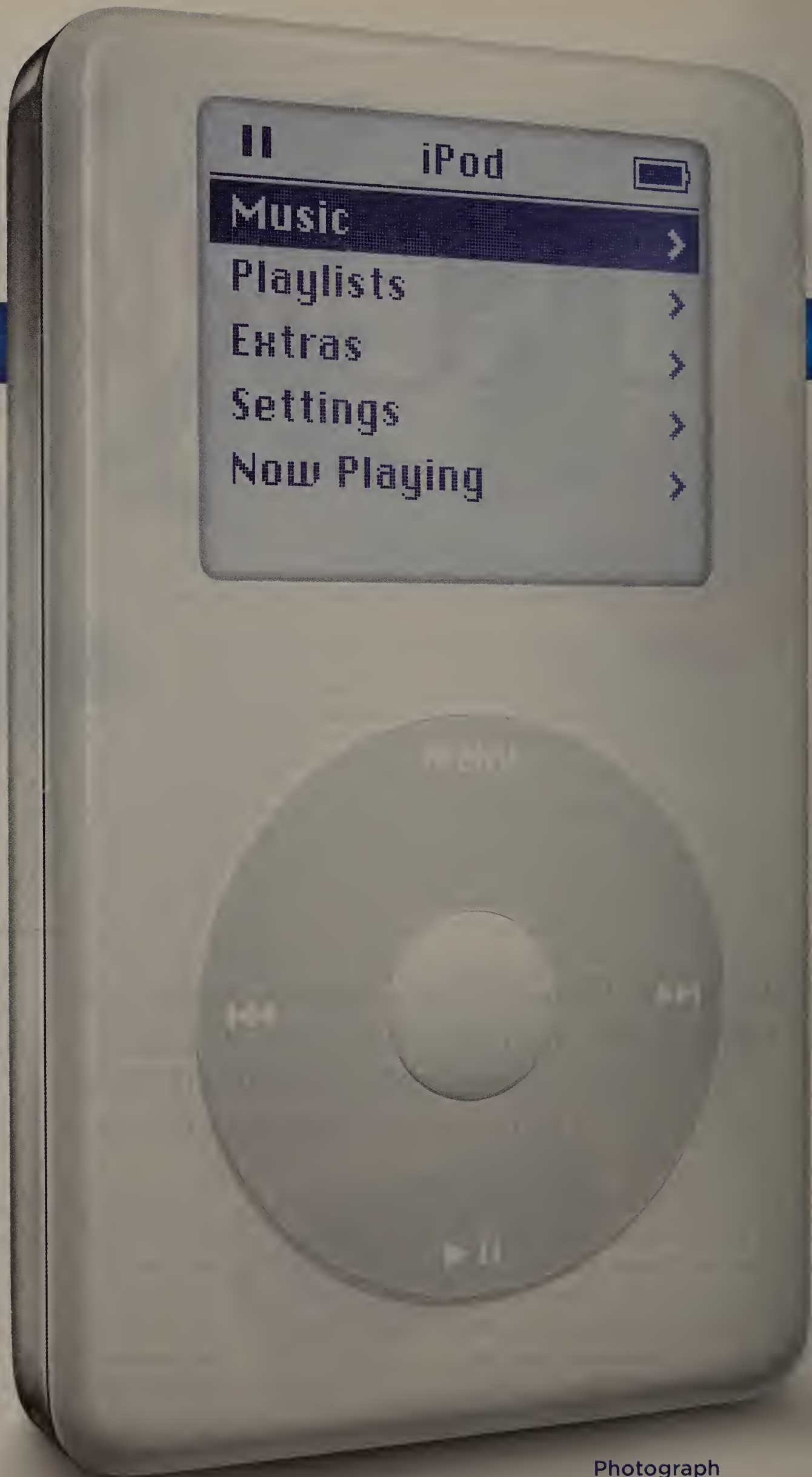
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Photograph
by Charles Nucci

Rock AND Scroll

The New Click Wheel iPod Rules the Digital Music World

Since its introduction nearly three years ago, the iPod has pulled off an amazing feat that goes beyond squeezing the contents of several shelves of CDs into your pocket. The portable music player has helped transform Apple—from a computer company serving a loyal (but relatively small) contingent of users, to the world's chief purveyor of legal digital music and digital music devices. Apple hopes to keep the music playing with the latest versions of the iPod—this generation incorporates hardware and software changes that alter the device's look and feel.

Hardware Happenings

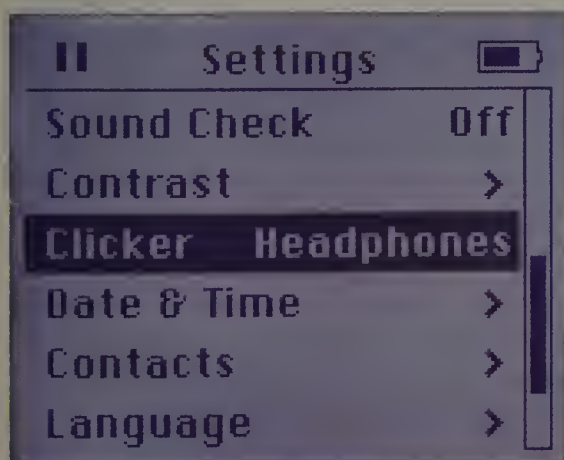
Like previous updates, the fourth-generation iPod is notably different from earlier editions, both on the inside and on the outside.

Click and Roll Apple faced a significant design challenge when it assembled the slim iPod mini—fitting all the controls and functionality of the original iPod's

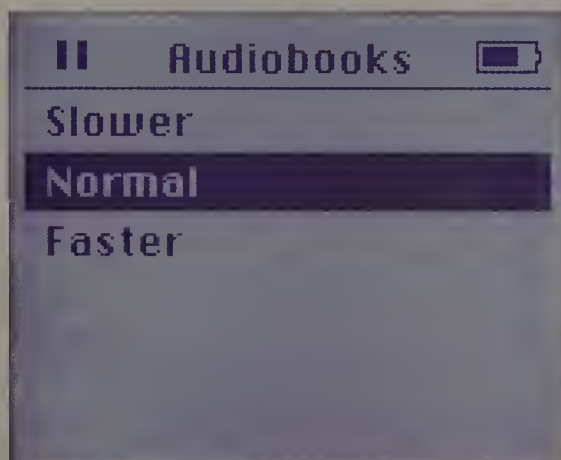
manual interface on a diminutive version of the music player. Born of necessity, the iPod mini's Apple Click Wheel now has a home on the full-size iPod (see “iPod Close-up”).

In form and function, the Click Wheel is very similar to the ring of buttons that surrounded the scroll wheels of the first- and second-generation iPods. Gone is the horizontal row of four touch-sensitive buttons introduced in April 2003. Its departure will be welcome news to iPod users who complained that the four buttons were too easy to touch accidentally and too unwieldy to operate on purpose—as well as to people who postponed buying a new iPod for that reason. (Even so, Apple sold more than 860,000 iPods and iPod minis from April to June 2004—buttons and all—bringing total iPod sales to more than 3 million since late 2001.)

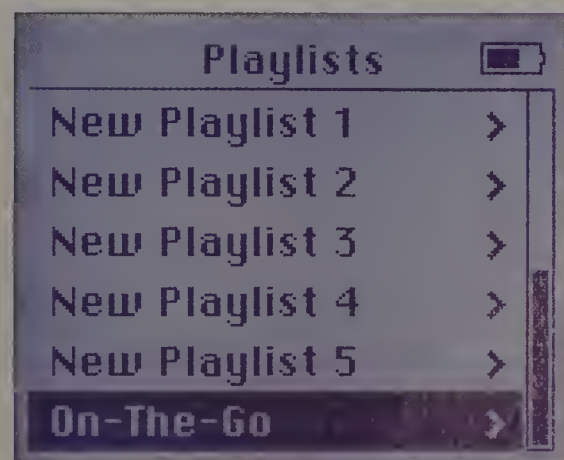
With those buttons gone, the new Click Wheel pulls double duty, providing a wheel for scrolling



Pick to Click Settings let you choose to hear the iPod's clicks through the speaker, your headphones, both, or neither.



Speed Reader New audiobook features let you control playback speed without changing the audio's pitch.



Saving On-The-Go Now when you create an On-The-Go playlist—or multiple playlists—you can save it on your iPod.

Fourth-Generation iPods

Music Player Adopts Click Wheel, Extends Battery Life

BY JASON SNELL

With controls borrowed from the iPod mini, a simplified interface, and a reduced price, the latest generation of iPods is the appropriate next step in Apple's stunningly popular line of digital-audio players.

On the Outside

As always, the iPod is a white-fronted, stainless steel-backed device that's roughly the size of a deck of cards. The new, iPod mini-like gray Click Wheel, in place of the previous version's touch-sensitive buttons, is the biggest change in the new iPods. The row of buttons located above the wheel on the previous model seemed like a good idea, but hitting them accidentally was too easy. To skip, play, and pause songs, and to navigate the new iPod's menus, you now physically depress the edge of the iPod's wheel at one of the four compass points; each is labeled with its function.

This iPod's Click Wheel interface works just as well as the iPod mini's. iPod users who skipped over the button-equipped models will find that using the Click Wheel is almost identical to using the ring of buttons around the scroll wheel on early iPod models.

If you've been frustrated by the battery life of previous iPods, you'll be pleased by the longer battery life introduced in this iteration. Apple claims that these iPods will stay charged for 12 hours, versus 8 hours for the previous generation, thanks in part to better power-saving features. We fully charged the new iPod and played it back on a continuous-play shuffle of several-thousand rock songs; in our first test, we managed to eke out about 11 hours of battery life, and we hit the 12-hour mark in our second test.

Interface Changes

A new iPod brings a new version of the iPod software, and version 3.0 offers several changes. Most noticeable is the rearrangement of the iPod's menus: Browse has become Music; a new Shuffle Songs command has appeared; and Playlists has been turned off by default. The Shuffle Songs command will please compulsive shufflers, but renaming Browse as Music doesn't seem to make much sense, especially since there's now an Audiobooks entry in the Music menu.

Despite the misnamed Music menu, fans of spoken-word audio content will find a lot to like about these new iPods. The Music: Audiobooks command provides you with a list of all your audiobooks, saving you two menu clicks. And under Settings: Audiobooks, you can choose to shift the speed at which a book is played, without shifting its pitch. The effect is seamless, and if you've ever been stuck with a particularly slow or fast audiobook reader, you'll know what a godsend it is.

The previous generation of iPods introduced the ability for iPod users to make On-The-Go playlists while they were out and about with their iPods. The new iPods improve on that feature, by letting you save and create many playlists. Unfortunately, if you're using the iPod's manual mode rather than syncing your iPod automatically with your Mac, these playlists are wiped out when you plug the iPod back into your Mac.

It's also unfortunate that the iPod still doesn't support iTunes' method of filtering out artists who appear only in compilations from the artist list. If you have a lot of compilations on your iPod, those artists can really bog down browsing.

Macworld's Buying Advice

What you demand from your music player will determine whether this iPod update will satisfy you. If your digital music collection remains relatively small, you're probably better off with an iPod mini. But if it takes 30 days to play your music collection from end to end, if you'd like to use the iPod's extra space for file storage, if you need extra battery life, or if you're a big fan of audiobooks, you'll love the new iPods.

RATING: ★★★★★

PROS: Clickable scroll wheel; long battery life; improved audiobook support.

CONS: On-The-Go playlists aren't saved in manual mode.

PRICE: 20GB, \$299; 40GB, \$399

OS COMPATIBILITY: Mac OS X

COMPANY: Apple Computer, 800/692-7753, www.apple.com

through songs, menus, settings, and the like, as well as a set of buttons. Next/Forward, Play/Pause, Previous/Back, and Menu controls are on the edge of the wheel, at the three, six, nine, and twelve o'clock positions, respectively; a slight push on the wheel at those positions acts like a button click. Those clicks let you control playback and navigate the iPod's interface. You make selections by clicking a button in the center of the Click Wheel. (You do have to physically push down this button—it's not touch-sensitive like the one on the last generation of iPods.) Stan Ng, director of iPod product marketing, says that iPod customers prompted the change; they told Apple that the Click Wheel simplified access to menus and browsing, since it didn't force them to take their fingers off the wheel to access the buttons.

In a departure from previous models, the latest iPod doesn't have the familiar all-white design. The Click Wheel is now gray, which Ng attributes to both aesthetics and function. "Our industrial-design team decided on something that looked great," Ng says. "And from simplicity and ease of use, it brings you directly to it—you know where to put your thumb."

Better Battery The first two incarnations of the iPod promised 10-hour battery life. That changed last year, when battery life on the third-generation iPod dropped to 8 hours—a change that the device's more compact design necessitated.

The new iPod reverses the downward trend, with a battery rated to run for 12 hours on a single charge. Apple attributes the longer battery life to several factors. "It is a slightly higher-capacity battery," Ng says. "But the majority comes from engineering of a new hardware architecture and new software." Both factors reduce the iPod's overall power consumption. Like the batteries in earlier iPods—and in any device that uses a lithium-ion power source—the new battery has a finite number of charge cycles (see "Mac Users in a Fix," *Mac Beat*, April 2004). Eventually, it will wear out and need to be replaced.

The iPod is still rechargeable via its AC power adapter, its FireWire cable connected directly to a Mac or a PC, or the dock (which is included with the 40GB model or is available as a \$39 add-on for the 20GB model). And for the first time with the full-size iPod, you can charge via an included USB 2.0 cable, just as you can with an iPod mini.

A word about the iPod dock—Apple sells a version made specifically for the Click Wheel models. But since the connection is the same as with the previous dock, you should be able to use an older dock with your new iPod. And since the iPod's dock connection remains the same, most third-party accessories compatible with the previous model should work fine with the new versions.

Curious Capacities The new iPod is available in two configurations, a 20GB model, for \$299, and a 40GB model, for \$399. These capacities should sound familiar—Apple offered both sizes in the third-generation iPod line, but those older models cost \$100 more than their fourth-generation counterparts. That fits with

Apple's pattern of dropping prices on older capacities as production costs fall and new technologies emerge. However, unlike previous iPods, neither new model comes with a remote control or a case—a decision Apple made in order to keep the price down, according to Ng.

This is the first time that the high-end model in a new generation of iPods hasn't had an increased storage capacity (see "The iPod Evolves"). This is particularly puzzling in light of Toshiba's June announcement that Apple was ordering the hard-drive maker's new 1.8-inch, 60GB hard disk. That new drive was expected to be available to manufacturers this summer, making a 60GB iPod an obvious choice to fill the \$499 spot not currently included among Apple's iPod offerings. When pressed for details about a new model based on Toshiba's 60GB mechanism, both Ng and Greg Joswiak, Apple's vice president of hardware product marketing, declined comment.

Pod Problem? As this issue went to press, some users of the new iPod had reported hearing static and noise through the headphones whenever the iPod accessed its hard drive—for instance, when the iPod was transferring songs from the hard drive to RAM cache. Such transfers happen when you skip through several songs or listen to more than 25 minutes of music at a time. The cause of the static is unknown; Apple did not respond to several requests for comment.

Under the Hood

The software running on the iPod often gets lost in the glitz of design, hard-drive space, and accessory issues. But it would be a mistake to overlook version 3.0 of the iPod software, since it adds several features that will affect how you use your music player.

Menu Magic iPod navigation has gotten a tune-up. Replacing the ambiguous Browse item of previous software versions is a Music menu (though, curiously,

Big iPod on Campus

First-year students at Duke University are already familiar with the details of Apple's new iPod. Officials at the North Carolina school handed out 1,650 of the 20GB models to incoming freshmen as they arrived on campus in August.

Duke administrators expect their students to use the iPods for carrying around more than the latest Black Eyed Peas song. Instead, the portable music players are part of a pilot program, designed by Duke and Apple, aimed at using the iPods as an educational tool. "We think the power and flexibility of these devices offer some real advantages over other media used to distribute educational content, such as CD-ROMs and DVDs," says Tracy Futhy, Duke's vice president of information technology.

The iPods the Duke freshmen received came preloaded with content on campus life, including orientation information and an academic calendar. A special Duke Web site modeled on the iTunes Music Store offers downloadable course content, including language lessons, music, recorded lectures, and audio books. (And, yes, Duke students can purchase music through the site.) Since computer ownership isn't mandatory for incoming freshmen, Duke lets students hook up their iPods to computers at labs around campus.

Duke finances the pilot program, which includes another 150 iPods slated for other academic and support needs, through strategic-planning funds set aside for one-time uses. The university plans to evaluate the program after a year.—PETER COHEN

iPod U. First-year students at Duke's East Campus will carry university-issued iPods.



DUKE UNIVERSITY PHOTOGRAPHY

Music also includes an Audiobooks entry). It gives you access to the same Artists, Albums, Songs, Genres, and Composers search methods as before. New to that list is Audiobooks. "We heard [from customers] that audiobooks were a great way to pass the time while commuting or on a plane," Ng says. "So we made audiobooks [a] category."

Book Smart The updated software does more than just give Audible-format audiobooks their own menu listing; it also gives you new control over playback

THE IPOD EVOLVES

Each major update to Apple's iPod has introduced changes, both sweeping and subtle, to the portable music player.

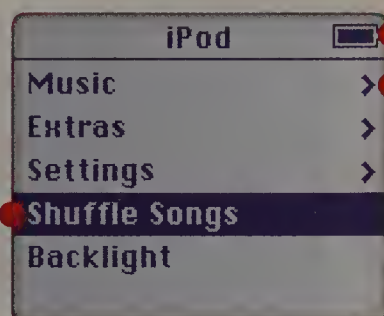
MODEL	RELEASE DATE	CAPACITY	PRICE	BATTERY LIFE	INTERFACE	PORTS	COMPATIBILITY	SOFTWARE HIGHLIGHTS
First-Generation iPod	October 2001	5GB	\$399	10 hours	scroll wheel	FireWire	Mac	iTunes 2 integration
	March 2002	5GB, 10GB	\$399, \$499	10 hours	scroll wheel	FireWire	Mac	contact-list storage
Second-Generation iPod	July 2002	5GB, 10GB, 20GB	\$299, \$399, \$499	10 hours	touch wheel	FireWire	Mac, Windows (via FireWire)	Genre and Composer organization categories, audiobook support
Third-Generation iPod	April 2003	10GB, 15GB, 30GB	\$299, \$399, \$499	8 hours	touch wheel, touch-sensitive buttons	FireWire and USB 2.0 dock connector (no USB 2.0 charging)	Mac, Windows	text notes, alarm clock, On-The-Go Playlist feature
	September 2003	10GB, 20GB, 40GB	\$299, \$399, \$499	8 hours	touch wheel, touch-sensitive buttons	FireWire and USB 2.0 dock connector (no USB 2.0 charging)	Mac, Windows	text notes, alarm clock, On-The-Go Playlist feature, voice recording, photo importing
iPod mini	January 2004	4GB	\$249	8 hours	Click Wheel	FireWire and USB 2.0 dock connector	Mac, Windows	no support for voice recorder or photo input
Fourth-Generation iPod	July 2004	20GB, 40GB	\$299, \$399	12 hours	Click Wheel	FireWire and USB 2.0 dock connector	Mac, Windows	new Music menu, Shuffle Songs feature, support for multiple On-The-Go playlists

iPod Close-up

Top View The top of the iPod remains unchanged, with a remote-control port, a headphone jack, and a hold switch.

Shuffle Songs Now appearing on the main menu, the Shuffle Songs command automatically shuffles all your music (except for audiobooks) and starts playing songs the instant you select it.

Buttons Menu, Next/Forward, Play/Pause, and Previous/Back controls are now directly on the Click Wheel itself. Push down on the edges of the wheel, and you'll feel it depress slightly; the corners of the iPod's wheel function as physical buttons.



Battery Fully charged, the fourth-generation iPod should provide close to 12 hours of continuous battery life.

Music Menu A Music heading replaces the ambiguous Browse menu.

Click Wheel Adopted from the iPod mini, this touch-sensitive wheel lets you navigate playlists and menus.

Center Button Unlike the previous iPod's scroll wheel, this button isn't touch-sensitive; you need to press it to select songs, playlists, and settings.

speed. The software lets you speed up or slow down audiobook playback without changing the pitch (and making it sound as though you were listening to a tape player running low on battery power, or to a person who had inhaled helium just before the recording session). So this feature should prove useful for speed-listening or for foreign-language instruction.

Like iTunes, the iPod recognizes an audiobook by its file type. If you use a utility such as FileBuddy to change the file type of an AAC file from M4A (unprotected) or M4P (iTunes Music Store file) to M4B (with a blank space at the end), you can change the speed of a song the way you would an audiobook. You'll also be able to take advantage of the iPod's audiobook bookmarking feature, so you can continue playing back a song from where you left off (great for long pieces, such as symphonies).

Serious Shuffle Shuffling through a playlist, or an entire iPod, is a fun way to enjoy your music with an element of surprise—it's like listening to a radio station that plays only music you like. To enhance that capability, Apple added a Shuffle Songs option to the main iPod window. Clicking on Shuffle Songs automatically shuffles all your music—excluding audiobooks—and begins playing. That saves you from having to turn on shuffling in the iPod's Settings menu and then browsing several levels down in order to select all songs.

Playlists To Go The On-The-Go Playlist feature, which lets iPod users create their own playlists away from a Mac, has been enhanced. Now you can create and save multiple On-The-Go playlists on the iPod. To save an On-The-Go playlist, just scroll to the bottom of the playlist and choose Save Playlist. The iPod will give it a unique name, such as New Playlist 1.

Once the playlist is saved, you can start creating an entirely new On-The-Go playlist. You can also delete songs from an On-The-Go playlist: just click on a song in the playlist and hold down the center button.

Polyglot Pod Until now, the iPod has supported 14 languages for displaying song, artist, and album information. The new software doubles that by adding 14 more languages, including Russian, Croatian, Czech, Greek, Polish, and Hungarian.

Good Listener One feature not hyped by Apple is the iPod's ability to sense headphone connection status. If you're listening to music and you pull the headphone jack out of its port, the iPod will pause. (The same feature also works if you've got something else, such as a cassette adapter, plugged into the headphone jack.) Reattaching the headphones does not start the music playing again—you need to do that yourself. If the iPod is in sleep mode or turned off, plugging in the headphones will bring it to life but won't start playback.

The Last Word

The changes introduced in the latest iPod generation aren't necessarily elaborate, but they are significant. Unlike past updates, which have introduced new functions or expanded compatibility, these changes seem aimed at improving the overall iPod experience. The new features may not revolutionize how you use your music player—but if you're an iPod enthusiast, then a new Click Wheel, longer battery life, and key software enhancements should give you plenty to sing about.

Macworld Senior Editor JONATHAN SEFF has been using an iPod since they were first unveiled back in 2001, and he has already traded in his old iPod for a 40GB Click Wheel model.

Think of them as a Mute button for the world around you.

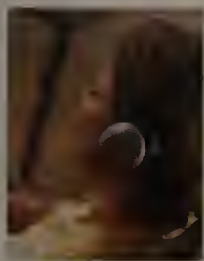
Whether it's the engine roar on airplanes, noise of the city, bustle in the office or the blare of neighborhood yard work, these headphones let you hush them all. And they do it with the flick of a switch. You savor delicate musical nuances in places where you couldn't before. And when you're not listening to music, you can use them to quietly enjoy a little peace. Clearly, Bose QuietComfort® 2 headphones are no ordinary headphones. It's no exaggeration to say they're one of those things you have to experience to believe.

Reduce noise with Bose technology.

David Carnoy reports on CNET that our original noise-reducing headphones "set the gold standard." And according to respected columnist Rich Warren, our newest headphones "improve on perfection." They electronically identify and reduce noise while faithfully preserving the music, movie dialogue or tranquility that you desire. As Jonathan Takiff reports in the *Philadelphia Daily News*, "Even in the noisiest environment, wearing these phones creates a calming, quiet zone for easy listening or just snoozing."

Enjoy your music with our best headphone sound quality ever.

After trying QuietComfort® 2 headphones, audio critic Wayne Thompson reports that "Bose engineers have made major improvements." The sound is so clear, you may find yourself discovering new subtleties in your music. CNET says "All sorts of music – classical, rock, and jazz – sounded refined and natural."



"The QuietComfort 2 lives up to its name, enveloping you in blissful sound in the utmost comfort. It's easy to forget they're on your head." That's what columnist Rich Warren says. And as Ivan Berger reports in *The New York Times*, the "QuietComfort 2

offers more conveniences than the original model." You can wear them without the audio cord to reduce noise. Or, attach the cord and connect them to a portable CD/DVD/MP3 player, home stereo, computer or in-flight entertainment system. When you're done, their convenient fold-flat design allows for easy storage in the slim carrying case.



Try the QuietComfort® 2 headphones for yourself risk free.

We don't expect you to take our word for how dramatically these headphones reduce noise, how great they sound and how comfortable they feel. You really must experience them to believe it. Call toll free to try them for 30 days in your home, at the office or on your next trip – satisfaction guaranteed. If you aren't delighted, simply return them for a full refund.

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Illustrations by Steve Forney



E-mail

SURVIVAL GUIDE

PICK THE PERFECT PROGRAM, MANAGE YOUR MAIL, AND ZAP SPAM

DO YOU DREAD OPENING YOUR E-MAIL PROGRAM

in the morning? Are you overwhelmed by the endless busy-work of checking, sorting, and replying to a constant onslaught of mail? Do you practically need a private detective to track down legitimate correspondence lost amidst the offers for hair tonics and weight-loss pills?

Hey, e-mail was supposed to make your life easier.

Macworld's E-mail Survival Guide will put you back in control of your in-box. We'll help you find an e-mail client that can better handle the load. We'll show you how to develop a strategy for staying organized. And then we'll address e-mail's biggest time waster: *spam*. We've got the latest tricks and tips for eliminating junk mail before it hits your in-box. ➤➤

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- 72** Win the Spam War



TRY IT OUT!

You'll find the e-mail apps and utilities mentioned in the *E-mail Survival Guide* on the CD that came with this issue (subscribers can access the CD's contents at <http://cd.macworld.com/2004/10/tie-orange>).



By
Christopher
Breen

Change E-mail Clients

Dissatisfied with Your Current Software? Now Is the Perfect Time to Switch.

Do you find it increasingly difficult to deal with the daily flood of e-mail? Do you wish your e-mail client could share information with other Mac programs? If so, it may be time for you to choose a new e-mail program.

E-mail management is no place for nostalgia—you shouldn't stick with a client simply because you've used it since the first Bush administration. You're better off basing your choice on the volume of e-mail you receive, the control you need over your e-mail program, and how well the app fits into your workflow. Changing e-mail clients doesn't have to be painful. I'll help you find a program that fits the way you use e-mail, and then I'll show you how to take your messages and contacts with you to their new home.

Create an E-mail Wish List

Before you can find the perfect fit, you need to understand what features are most important to the way you use e-mail. To help you sort it all out, first consider some of the big issues.

Money Matters If price is your primary concern, you can't go wrong by choosing an application you already have—Apple Mail. Likewise, if you've shelled out money for the Microsoft Office 2004 suite, you already own Entourage.

Spam Protection If you have an e-mail account, you will get spam. Many ISPs and company networks try to filter out the obvious spam before it reaches you. But if yours don't do that—or if you're still overrun with the stuff—you'll want an e-mail client that can take on the task. All the programs we recommend here

offer spam filters that learn how to correctly identify incoming spam and that remove it from your in-box. If you receive a lot of spam, you'll further benefit from a program with sophisticated mail filters, such as those included with Entourage or Bare Bones Software's Mailsmith. These filters can help you isolate the spam that circumvents your other barriers. (For tips on eliminating spam, see "Win the Spam War.")

Simplicity Completing day-to-day e-mail tasks shouldn't require excessive brain activity. If you often receive or create HTML-formatted messages, for example, you should think twice about adopting an e-mail client such as Mailsmith, which makes you jump through hoops to do either. You should also consider the accessibility of the information you need. If you routinely use OS X's Address Book or iCal, you'll be happier if your e-mail client does, too.

Manageability Some people keep every message they've ever received in one in-box. And that's fine for very light e-mail users or people who don't mind weeding through an endless list of messages. But if you receive a lot of mail, you'll benefit greatly from a program with sophisticated mail filters that can automatically sort and prioritize your incoming messages.

You also may want a client that offers flexible scheduling. Although all e-mail clients can download mail every couple of minutes, only high-end programs such as Entourage and Mailsmith let you create more-complicated schedules—for example, to access a rarely used account only on Tuesdays and Thursdays.

Advanced Control If you regularly receive or send high volumes of mail, you may need something that goes above and beyond the normal call of duty. You might want to use AppleScript, Apple's native script-

E-MAIL PROGRAMS COMPARED

COMPANY	PRODUCT	MOUSE RATING	PRICE	CONTACT	SUPPORTS E-MAIL STANDARD	AUTOMATIC SPAM FILTERS	USER-DEFINABLE FILTERS	SUPPORTS HTML TEXT	SCRIPTABLE (APPLESCRIPT)	IN-LINE SPELLING CHECKER
Apple	Mail 1.3.8 (Panther)	★★★★	with OS X, free	www.apple.com	IMAP, POP	●	●	●	●	●
Bare Bones Software	Mailsmith 2.1.2	★★★★	\$99; upgrade from competing application, \$79	www.barebones.com	POP	●	●	○	●	○
Microsoft	Entourage 2004	★★★★	as part of Microsoft Office 2004, \$399 ^A	www.macbu.com	IMAP, POP	●	●	●	●	●

● = yes; ○ = no. ^A Not available separately; upgrade and other pricing available. ^B Only with the program's integrated address book.

ing language, to automate some of your e-mail client's tiresome tasks. Or you may want to be able to add mail headers to your outgoing e-mail messages—a PGP fingerprint header, for example.

Proper Access E-mail is hosted on one of two kinds of servers—POP (Post Office Protocol) or IMAP (Internet Message Access Protocol). POP accounts, which download messages to your computer, are more common than IMAP accounts, which store mail on your ISP's server. However, many Web-based e-mail services—including Apple's .Mac and America Online's AOL—require an IMAP connection. If you use an IMAP account and your client doesn't support it, the client is useless to you.

Find the Right Fit

OS X users have several options when it comes to choosing an e-mail client. But three programs stand out from the rest in terms of features, reliability, and performance—Apple Mail, Microsoft Entourage 2004, and Bare Bones Software's Mailsmith 2.1. The kind of e-mail user you are will determine your choice. (For a quick overview of the programs' features, see "E-mail Programs Compared.")

The Casual E-mailer

You receive a light to moderate amount of e-mail and don't spend much time trying to keep it organized, beyond dividing it into folders. You already use (or would like to use) Apple's Address Book and iCal programs, and you want an e-mail program that can take advantage of them.

Our Recommendation: Apple Mail 1.3.

Why: Apple's e-mail client has evolved into a reasonably mature application. Mail is accessible enough for beginners and complete enough for people who need to manage a moderate amount of e-mail.

Mail includes all the basic rules necessary to capably route messages to different mailboxes (although the list of rules isn't as extensive as that of Entourage or Mailsmith). Users who collaborate with others via

WHAT ABOUT EUDORA?

Sharp-eyed readers will notice that Qualcomm's Eudora 6.1 (●●●½; January 2004) doesn't appear on our list of recommended e-mail clients. Although Eudora has been a past favorite—particularly for users who need nearly infinite control over their e-mail settings—the e-mail landscape has changed and, regrettably, Eudora has been slow to change with it.

It's true that Eudora makes quick work of searching massive mailboxes and offers almost limitless ways to customize your mail settings (for example, you can designate which headers will appear in messages sent from a particular account). But for most advanced users, these perks won't make up for the program's aging features, including limited filtering options—Eudora provides just two If conditions and four Then actions for sorting messages. It also does a poor job of displaying complex HTML messages. And although Eudora is scriptable, its scripting dictionary is out of date, so the program is more difficult to script than Mail, Entourage, and Mailsmith.

If Eudora suits you, by all means stick with it. But if the program no longer fits the bill and if you need absolute control over your e-mail, I recommend switching to Mailsmith.

e-mail will particularly appreciate Mail's Thread view, which groups messages that are part of an ongoing exchange. But Mail's scheduling options are extremely limited compared with those in Entourage—you can't create multiple schedules, and you can't ask Mail to check your mail less often than once an hour. There is potential for adding more-advanced features; Mail offers solid support for AppleScript and lets you trigger an AppleScript from a mail rule.

Of course, Mail's greatest advantage is its integration with other Apple applications. You can configure iCal to send announcements of upcoming events through Mail. And you can add contacts to Address Book with the click of a button.

The Office E-mailer

You rely on Microsoft Office to get your job done, and you want an e-mail program that seamlessly integrates into your workflow. You get a moderate to heavy amount of e-mail and you need a way to quickly sort through your incoming messages, pick out the important messages from the not-so-important notes, and file them away in the appropriate folders.

Our Recommendation: Microsoft Entourage 2004.

Why: Entourage offers nearly every feature found in Mail (except integration with other Apple programs and message threading) and many more.

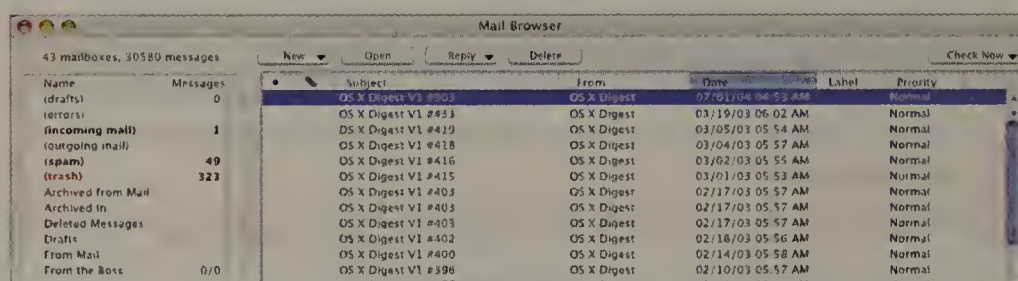
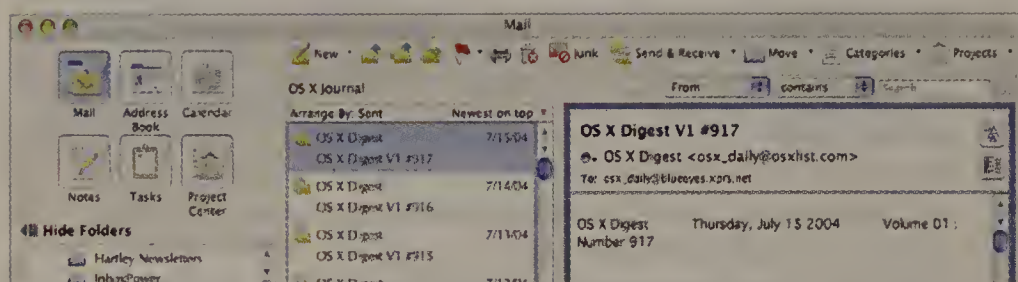
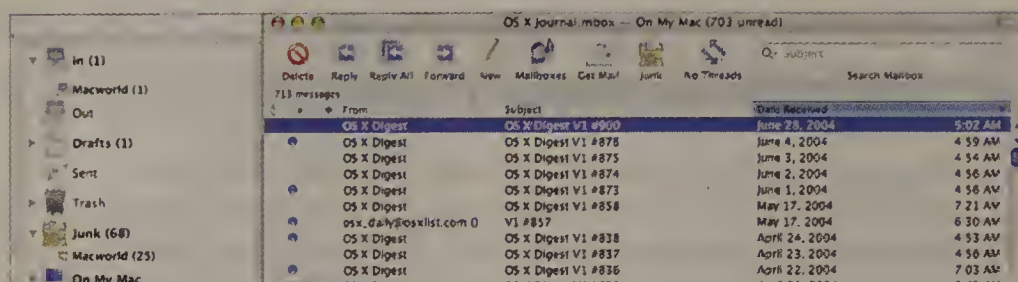
Entourage's greatest strengths lie in its management features. Its mail rules can filter messages in ways not possible in Mail—for example, you can create rules that apply only to messages formatted as HTML. And its Mailing List Manager greatly simplifies the process of sorting mailing-list e-mail. The program's Project Center, which allows you to organize contacts, events, mail, and documents by project, is unmatched in any other e-mail client.

ADDRESS-BOOK INTEGRATION

PROS

CONS

●	Easy to use; e-mail threading; bundled with OS X.	No advanced search features; limited scheduling features.
●	Powerful scripting, mail-filtering, and text-manipulation features; good integration with PGP, SpamSieve, and OS X's Address Book.	No support for IMAP, LDAP, or non-Latin characters; user interface needs a makeover; no in-line spelling checker; no integrated search filter.
● ^B	Improved junk-mail filtering; useful project tracking; extensive filtering tools.	Minor e-mail bugs; somewhat inflexible archiving.



Take Three Here's a look at Mail (top), Entourage (middle), and Mailsmith (bottom) in their default browser modes.

Entourage can schedule more tasks than Mail can. It's also the only e-mail client in this roundup that can trigger an AppleScript from a schedule—for example, to archive messages when you quit the program.

Entourage doesn't share information with Address Book or iCal. Instead, it offers its own tools for managing contacts, calendars, notes, and more. If you work in a cross-platform office, you'll appreciate the program's superior support for Microsoft Exchange Server—server-based software that lets Entourage and Outlook users share contacts and calendars over a network. Entourage is also the only Mac e-mail client that can send and receive Hotmail.com messages by default.

Entourage's weakest link is its single database. A bloated database can slow down performance, and if it

becomes corrupt, you could lose everything. If you choose Entourage as your e-mail client, you should regularly back up Entourage's Database file (located in your user folder at Documents: Microsoft User Data: Office 2004 Identities: Main Identity).

The E-mail Commander

You're no e-mail novice. You use e-mail for advanced tasks, such as running a newsletter or managing multiple accounts, and you need to have full access to your e-mail settings. You also want a no-nonsense program that can quickly search and manipulate a high volume of e-mail.

Our Recommendation: Bare Bones Software's Mailsmith 2.1.

Why: Although Mailsmith is approachable enough for typical Mac users, it tends to appeal to a highly technical—and proudly geeky—audience.

If you're accustomed to other e-mail clients, you may be thrown off by Mailsmith's spartan interface and its lack of amenities common in other e-mail programs—for example, support for HTML messages (though you can view such messages in your default browser at the click of a button), support for IMAP e-mail accounts, and an in-line spelling checker.

But for exercising complete control over your e-mail client, Mailsmith's list of features is hard to beat. Although the program doesn't search mounds of messages as quickly as Qualcomm's Eudora—one of *Macworld's* past favorites for advanced users—Mailsmith does a better job of pinpointing the messages you're after, thanks to its highly configurable search feature. For example, you can search for words that begin or end a text string, or use special grep characters to identify loose patterns of text. And the options for creating mail filters are just as expansive.

Mailsmith offers built-in support for PGP encryption and Michael Tsai's powerful SpamSieve software—which is superior in many ways to what you'll

EXPORTING TO STANDARD FILE FORMATS

In a computing world rife with incompatible standards, the mbox and vCard file formats offer a rare sliver of sanity. By converting your data into these two cross-platform standards—mbox for e-mail messages and vCard for contacts—you can quickly and easily move much of the information in your e-mail client and address book to other applications, or even to the same application on a different computer.

Here's how to access mbox and vCard files from Mail, Entourage, Mailsmith, and Eudora.

Creating mbox Files To generate an mbox file from Entourage, Mail, or Mailsmith, just click on one of the program's mail folders and drag it to your desktop. Repeat this for

each folder you want to move. Note that in Entourage, the newly generated mbox file won't include any of the folder's subfolders. You'll have to drag these to the desktop separately.

When you drag Mailsmith's mailboxes to the desktop, they become text documents by default. To import these files into Mail or Entourage, you must first append the .mbox extension to them.

Eudora doesn't support this drag-and-drop method. To access its mbox files, open your user folder and go to Documents: Eudora Folder: Mail Folder.

Creating vCards In most cases, creating vCards is also a drag-and-drop affair. To

export vCards from Apple's Address Book—which both Mail and Mailsmith use—just select the contacts you want and drag them to the desktop. You'll end up with a single file with all the selected contacts.

Unlike Address Book, Entourage won't export multiple contacts as a single vCard file. So if you plan to export multiple contacts, it's a good idea to first create a folder to hold all of the resulting vCards.

To export Eudora's nicknames as vCard files that can be imported into Apple's Address Book, Entourage, or Mailsmith, use Andreas Amann's free Eudora vCard Export (find www.macworld.com/0038).

find in Mail or Entourage. And if you're handy with AppleScript, you can automate nearly all of the program's functions.

Make the Switch

Regrettably, there's more to switching e-mail clients than just deciding which one suits you. There's also the sometimes-messy business of moving e-mail and addresses to a new home.

Most e-mail programs have an Import command that automates the process of moving your e-mail, contacts, and other data. But if the Import option doesn't support your client—or if it doesn't do a sufficient job—there's still hope. You can almost always get the job done with a third-party utility or by manually converting your files into the standard mbox or vCard formats. (For details on getting your files into these formats, see “Exporting to Standard File Formats.”)

Here are some guidelines for bringing your old messages and contacts into your new program.

Moving to Mail

E-mail If you're moving to Mail from Entourage, Outlook Express, Netscape/Mozilla, or Claris E-mailer, open Mail's Import Mailboxes command (File: Import Mailboxes) and select the appropriate import option. You can also import mbox files that you created in another application. In the Import window, select Other, click on the right-arrow button, and navigate to the location of the mbox files.

Although Mail offers to automatically import e-mail from Eudora, the process is far from ideal—it ignores attachments and removes HTML and rich-text formatting from your messages. Instead, use Andreas Amann's free Eudora Mailbox Cleaner (find www.macworld.com/0036). This utility correctly transfers messages, as well as filters and nickname files.

Contacts Mail stores its contacts in Apple's Address Book. You can import addresses from Entourage, Outlook Express, Palm Desktop, Eudora, Claris E-mailer, or Netscape/Mozilla by using the Import Addresses AppleScript.

If you haven't already installed OS X's Script Menu (look for a tiny scroll that appears in the Finder's menu bar), go to your Applications: AppleScript folder and double-click on the Install Script Menu item. Then, from the Finder, click on the newly installed Script Menu and choose Address Book Scripts: Import Addresses.

Moving to Entourage 2004

E-mail Entourage's Import command (File: Import) will transfer e-mail messages and addresses from Entourage, Outlook Express, Eudora, Mail, Netscape Communicator, and Claris E-mailer. If you're coming from a different e-mail client or from a different computer, first export your messages as an mbox file, and then drag this file onto the Folders On My Computer entry in Entourage's Folders pane.



Import Mail from Microsoft Outlook for Windows

When contemplating a move to the Mac, one of the first questions many Windows users ask is “Will I be able to access my old e-mail, contacts, and calendars on my new computer?” Thanks to Outlook2Mac, a \$10 program from Little Machines (www.littlemachines.com), the answer is yes.

Outlook2Mac painlessly converts Outlook mail to a form that you can import into Mail, Entourage, or Mailsmith. It will also export contact and calendar data to any program that supports the vCard and iCalendar (.ics) file format standards—including Address Book, iCal, and Palm Desktop.

Outlook2Mac is remarkably easy to use. Simply purchase an appropriate version of the program (separate versions are available for Outlook 2002/2003/XP, Outlook 2000, and Outlook 97/98) and launch it. The software then walks you through the process of exporting the needed data. You can select specific mailboxes, a range of calendar dates, and the most appropriate file format for the data export. If you're moving to Address Book or Palm Desktop, you'll need to export your Outlook contacts as a single vCard file. Likewise, iCal requires a single .ics file for calendar data. If you're moving to Entourage, you'll need to export your data as *individual* vCard and .ics files. You should also instruct the program to filter out any attachments that won't work with your Mac—files ending with an .exe extension, for example.

Contacts If you have contacts, calendars, notes, and other bits of data stored in Microsoft Outlook or a personal information manager such as Palm Desktop, you can easily bring them to Entourage 2004 with the help of Paul Berkowitz's \$20 collection of AppleScripts, Export-Import Entourage X (find www.macworld.com/0037). This collection includes more than 50 scripts for moving almost anything into and out of Entourage X and 2004.

If you have vCard files that you exported from another application, you can also import these by dragging them into Entourage's Address Book window.

Moving to Mailsmith

E-mail When you launch Mailsmith for the first time, it offers to import mail and contact information from a variety of programs, including Eudora, Claris E-mailer, and Mail. If you need to import mail from other clients or want to add messages after the initial import process, you can do so by dragging mbox files into the Mailsmith window.

Contacts You can also import contacts from Eudora and other vCard-compatible applications by exporting them as vCard files and dragging them into Mailsmith's Address Book window. (Mailsmith uses OS X's Address Book, so you don't need to import these contacts.)

Message Received

For many of us, e-mail has become an integral part of the workday and a primary means of keeping in touch with others. Given the variety of e-mail clients out there, you have no excuse for sticking with a program that can't meet your needs. If it's time to switch to a better client, this guide will point you in the right direction. But only you can get the ball rolling.



By
**Christopher
Breen**

Get Organized

**You've Got Mail, Mail, and More Mail.
Here Are 7 Quick Ways to Maintain Order.**

E-mail was supposed to be a time-saver. But hand-sorting an in-box overflowing with personal messages, business correspondence, mailing-list deliveries, and jokes from clue-

less cousins (not to mention the load of unsolicited e-mail you receive each day) can take a substantial bite out of an already busy day.

What you need is an e-mail strategy. I'll show you seven ways to take control of your jammed in-box.

1 Establish Rules

One of the easiest ways to automate filing duties is to create a mail rule—a set of criteria that tell your e-mail client how to sort and file your messages when they arrive. This not only makes your in-box more manageable, but also helps you quickly prioritize your incoming messages. For example, you can use rules to assign colors to different types of mail, so you can quickly distinguish work assignments from family gossip.

To access rules in Entourage, go to Tools: Rules and click on New. In Mail, go to Mail: Preferences: Rules. In Eudora and Mailsmith, go to Window: Filters.

Regardless of the program you use, the basics of setting up a mail rule are essentially the same. You use If statements to tell your e-mail program how to identify the messages you want to control, and Then statements to specify what to do with those messages.

For example, if you have two e-mail addresses—one for personal mail and one for business mail—you might find it useful to separate these messages into two different mailbox folders. Such a filter would look like this:

If: Any Recipient is *me@personal_address.com*

Then: Move Message to *Personal E-mail Folder*

For more-powerful filters, you can combine multiple If and Then statements. For example, to make sure you give prompt attention to messages from your company's bigwigs, you might want to move their

incoming messages to a From The Boss folder and play a suitably ominous sound (see "Aye, Aye, Boss!").

2 Take Control of Mailing Lists

Using rules is also vital if you subscribe to mailing lists—particularly ones that don't offer digests, but rather copy you on every message sent to the list.

Entourage has a handy Mailing List Manager feature (in the Tools menu) that automates the most laborious aspects of managing such lists. For example, it can move incoming list e-mails to a designated folder, break list digests into individual messages, and delete duplicate copies of messages you send to the list. If you don't use Entourage, you can set up something similar—but much more basic—by creating a mail rule that picks out any message with the list's e-mail address in the From field and moves it to a dedicated mailing-list mailbox.

3 Follow a Conversation

Some e-mail exchanges can span weeks and include half a dozen people. You can often get a quick overview of the back-and-forth by sorting your mail by Subject, but this method is far from perfect: I can't tell you how many of my message threads have started with the subject lines "A quick question" and "Hello."

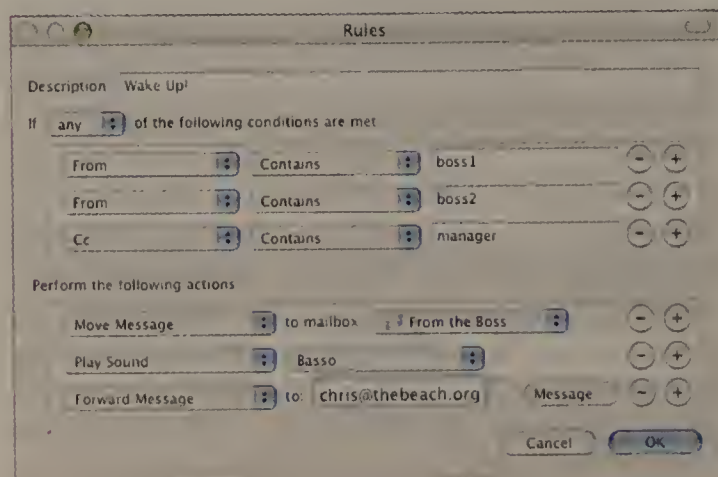
With Entourage, you have only the sorting method. Mail and Eudora offer more-efficient solutions. In Mail, go to View: Organize By Thread. Mail then groups all your related e-mails—and *only* the e-mails relevant to this specific thread—under a single heading highlighted in blue. You can view all of the messages in a thread by clicking on the arrow to the left of the highlighted message. To group messages by thread in Eudora, go to Special: Sort: Group Subjects (or just option-click on the message's subject line).

4 Get a Better View

Most e-mail programs offer basic sorting options—such as Message Status, Subject, and To. Entourage 2004, however, lets you further arrange your messages into *groups*—larger categories of sorted messages that you can then quickly collapse or expand.

For example, you could use the Groups feature to quickly slim down your Entourage database by eliminating large files from your in-box. Turn on Groups by going to View: Arrange By: Show In Groups. Now when you sort your messages by Size (View: Arrange By: Size), Entourage groups them into categories such as Small, Medium, Large, Huge, and Enormous. To quickly eliminate all of your Enormous, Huge, and Large files, click on the Group header (which selects all messages in the group) and press delete.

Aye, Aye, Boss! A mail rule that alerts you to the presence of messages from higher-ups may save your bacon.



To further control your messages, you can define how they are sorted within individual groups. For example, you may want to eliminate only some large files: those that are older than a week or that are from certain individuals. To do this, create a new custom arrangement (View: Arrange By: Edit Custom Arrangement) that groups items by size and then arranges items within the group by Sent or by From. Click on OK to save your new arrangement. To apply this view to your in-box, go to View: Arrange By and select the saved custom arrangement.

Find Anything Fast

Most e-mail clients offer an advanced search option that uses multiple criteria to scan all your stored e-mail. Entourage's advanced search option even lets you include contacts, notes, and calendar options in the hunt.

Apple Mail won't let you search by more than one criterion. But there is a workaround. Create a rule that uses multiple criteria to identify messages and then copies those messages to a special folder. For instance, if you wanted to find all your business-related messages older than seven days that CC'd your coworker Fred, you'd create a rule that looked like this:

If: CC contains Fred

Date Received Is Greater Than 7 Days Old
Account Is me@mybusiness.org

Then: Copy Message To Mailbox Fred

To apply the rule to a selection of messages, go to Message: Apply Rule. Everything that meets these requirements will appear in your Fred mailbox, which you can delete once you're done.

Create E-mail Archives

Any good e-mail maintenance plan should include a backup strategy. That way, if a question comes up months or even years from now, you'll have an intact, searchable record of the correspondence. But archiving all of your messages at once can be unwieldy. A better approach is to create separate archives of related messages. This way, you can conserve space by backing up only the messages you need.

One easy way to create these archives is to filter messages as you normally would while also filing away a copy in a separate, archived mailbox. For example, if you employ freelance workers, you might create a rule that filters their messages to a mailbox for whatever project they are currently working on and sends copies to a mailbox called Quarterly Projects, which you archive four times a year.

When you're ready to back up your archive file, just drag the mailbox from your e-mail client (if you're using Mail, Entourage, or Mailsmith) to the desktop to create an mbox file that you can then burn onto a CD. To locate Eudora's mbox files, open your user folder and go to Documents: Eudora Folder: Mail Folder. Later, if you need to access the informa-



Manage Your Web Mail

Free Web-based mail services such as Yahoo Mail and Hotmail are great for checking your mail when you're on-the-go. But when you're sitting at your desk with your favorite e-mail client in front you, having to open a Web browser to check your messages is frustrating. It also makes archiving a challenge. But there are ways to access your Web mail from a desktop client.

The Paying Way Both Yahoo Mail and Hotmail offer extended mail plans that let you download messages via a POP mail account, for \$20 a year. With POP access you also get greater e-mail storage capacity, spam filtering, and no advertising. For a run-down of Web mail options and applicable fees, see "Web Mail Supersizes" (Mac Beat, August 2004) or go to find.macworld.com/0039.

The Built-in Way Some e-mail programs offer tools for accessing specific Web-based mail accounts. For example, you can access Hotmail messages from within Entourage. Just run the Account Setup Assistant (Tools: Accounts: New), and enter your Hotmail address in the E-mail Address field to get started.

The Third-Party Way Several utilities let you forward e-mail from a Web-based service to an e-mail account you maintain with another ISP.

You can download Hotmail messages to Mail with the help of Daniel Parnell's free HTTP Mail Plugin (find.macworld.com/0040). After you install the program, open Mail's Accounts preferences, click on the Account Information button, and click on the plus sign (+) button to create a new account. An httpmail option should now appear in the Account Type pop-up menu. Choose it; then enter your Hotmail settings in the appropriate fields. Your messages will now download to a newly created Hotmail mailbox.

Yahoo Mail users can forward their mail to any POP account with the help of System Support Products' \$15 Mail Forward (find.macworld.com/0041). This application, which can also forward AOL and Hotmail messages, logs on to your account and forwards your messages to another e-mail account via your ISP's SMTP server.

tion in an archived mbox file, just open it in a text editor or drag it back into your e-mail client.

7 Archive Entourage Projects

If you use Entourage 2004's Project Center to group related e-mails, tasks, and documents, you can archive projects via the Export command. In the Export window, enable the Items That Are In The Project option and choose a project from the pop-up menu. To save space, tell Entourage to delete messages once they're archived. Entourage will create an .rge file. To restore the data in this file, select File: Import: Import Information From An Entourage Archive. If you don't want to permanently return the messages to your mailbox, import them into a new identity (Entourage: Switch Identity) and delete the identity when you're done.

Organize Your Rules The order in which mail rules appear is important. E-mail programs apply rules in the order they're listed. So if you've created a filter that moves all messages sent by Jane Doe to one mailbox and another filter that transfers all messages that came from the Taffy Lovers mailing list to another mailbox, Jane's message expressing her love for taffy will be filtered by whichever rule appears first. If one of your rules doesn't work, check to see whether another rule higher in the list conflicts with it.



Tip



By
Joe Kissell

Win the Spam War

Spammers Get More Devious Every Day.
We'll Show you How to Stay Two Steps Ahead.

Imagine going to your mailbox every day, pulling out hundreds of flyers, and then sorting through them to find the one bill or personal letter you were expecting. For many of us, this is exactly what the spam epidemic has become: a frustrating and time-consuming daily ritual of weeding out offensive and irritating offers so we can get to the messages we actually want and need. To make matters worse, spammers' tactics are constantly changing—rendering spam-proofing strategies that worked a year ago all but useless today.

Even by conservative estimates, spam now accounts for well over half the e-mail sent worldwide. But you *can* fight back—in many cases by using tools you already have. Stopping spam involves much more than just clicking on a check box. A good spam-fighting strategy includes keeping your e-mail address away from spammers, using common sense about reading and replying to spam, and fine-tuning your built-in filter for optimum accuracy.

I'll focus on optimizing the spam-fighting tools built into Apple Mail and Microsoft Entourage, two of the most popular e-mail clients for Mac OS X. However, many of the strategies I discuss apply to all e-mail users, regardless of what software they use.

Don't Let the Spammers Find You

So who exactly are these spammers, and what do they want with you? Although some spammers are hoping you'll give away personal information so they can steal your money, most just want to sell you something. Clever hackers write programs that gather potentially valid e-mail addresses, and then they sell these

addresses by the hundreds of millions to spammers—often ordinary people hoping to make a quick buck. Spammers know that most of their messages will be deleted or ignored, but they make up for this in volume. If even a tiny fraction of their messages results in a sale, spammers can make a considerable sum.

Your first line of defense, then, is to stay off the radar of spammers and their address-gathering programs.

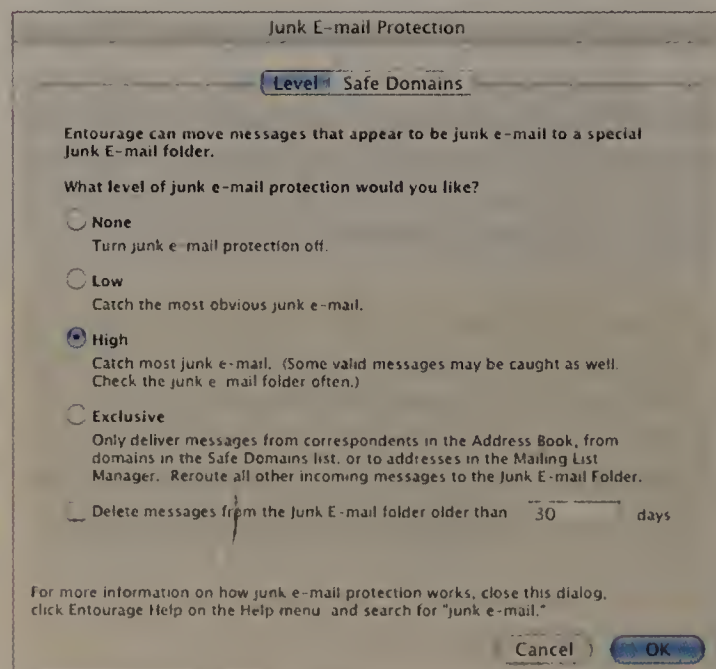
Guard Your Address The easier it is for someone to find your e-mail address, the more likely you'll be the target of junk mail. So avoid publicizing your e-mail address on Web pages or in newsgroup postings. If you really *must* post your address online, turn it into a graphic with no `mailto` link. If you need to enter an address in Web forms for online purchases, contest entries, and the like, consider getting a second address, such as a Hotmail.com account, just for this purpose. This will let you to keep your primary address private and relatively spam-free.

Practice the Silent Treatment Resist the temptation to reply to spam messages—even to unsubscribe from them. In most cases, no one will read your reply. And if it does get through, it simply confirms that your address is valid. In general, you can safely unsubscribe from newsletters and other mailings from legitimate companies with which you've done business—but if you've never heard of the mailer, chances are any Remove Me links are bogus.

The same is true of *bouncing* messages—returning a spam to its sender in hopes of tricking the spammer into thinking that your address is invalid. Savvy spammers can still tell that a message reached its destination. Besides, since spam messages are sent out by the millions, spammers aren't likely to bother removing invalid addresses from their lists.

Turn Off HTML Spammers can tell that you've read their messages by using a *Web bug*, a small graphic that your e-mail client downloads when you display a message with HTML formatting. The graphic's URL contains a unique identifier tied to your e-mail address, so merely displaying the message tells the spammer's server that you've read it.

To thwart Web bugs, turn off the display of HTML graphics in your e-mail client. By default, Entourage 2004 doesn't download images unless the sender is in your address book. In Mail, open your Viewing preferences and deselect the Display Images And Embedded Objects In HTML Messages option. If you receive a legitimate HTML-formatted message, you can easily download the images by clicking on the Load Images button in Mail or the Download Pictures link in Entourage 2004.



Better Protection

To make Entourage less tolerant of spam, make sure its Junk E-mail Protection setting is High.

Take Advantage of Spam Filters

Of course, it's almost impossible to elude spammers completely. This is where your e-mail program's built-in spam filters come into play. Spam filters function as e-mail gatekeepers, separating invited guests from the riffraff.

Apple Mail 1.3 (included with Panther) and Entourage 2004 both offer significantly better spam-fighting tools than their predecessors. In fact, if you're using earlier versions of Mail or Entourage, I recommend upgrading for the spam improvements alone. But to really put these built-in filters to work, you need to train them to recognize the type of company you like to keep—and the type that should be left on the curb.

Practice Makes Perfect Mail and Entourage use statistical junk-mail filters—programs that try to learn which words and message attributes distinguish spam from legitimate mail. When you identify an incoming message as junk, the filters add information about that message to a database, making it easier for them to identify similar messages in the future. Likewise, the filters track the attributes of valid messages to avoid marking them as spam. By constantly updating their databases, these junk-mail filters get smarter as you use them and are able to better adapt to the latest spamming tactics.

But for statistical filters to be effective, you must diligently correct their mistakes. If your e-mail client fails

to identify a spam message, take the time to mark it as junk. In Mail, select the message and choose Message: Mark: As Junk Mail. In Entourage, choose Message: Mark As Junk (or press ⌘-shift-J in either program).

Similarly, if your e-mail client mistakes a legitimate message for spam (called a *false positive*), correct that mistake by marking the message as Not Junk.

Introduce It to Your Friends Because legitimate messages sometimes include the same words and phrases as spam, the best way to prevent false positives is to create a *white list*—a list of people whose messages should never be marked as junk.

Entourage's spam filter automatically exempts messages from anyone listed in the Entourage Address Book. Similarly, you can have Mail exempt anyone in the OS X Address Book by opening Mail's Junk Mail preferences and selecting the Sender Of Message Is In My Address Book option. Then be sure to keep your address book up-to-date with the names and e-mail addresses of everyone who regularly sends you mail. To add the sender of a selected Mail message to the OS X Address Book, choose Message: Add Sender To Address Book (or press ⌘-Y). To add a sender to Entourage's Address Book, go to Tools: Add To Address Book (or press ⌘-= [equals sign]).

Optimize Mail's Settings

Mail's default spam settings offer a good start to fighting junk mail, but they should be considered just

ESSENTIAL SPAM-FIGHTING RULES

Although statistical filters are much better at catching spam than manual rules, there are a few cases where adding your own rules can help catch spam your built-in filters might otherwise miss. (For instructions, see "Get Organized.")

Here are three rules that all spam-fighting warriors should have in their arsenals.

1. Look for Spam Headers Some ISPs insert a hidden header—most often the X-Spam-Flag header—into messages they suspect are spam. To view these headers in Mail, choose View: Message: Long Headers; in Entourage, choose View: Internet Headers.

Although Mail knows to use these headers to help filter your mail, Entourage doesn't. But you can add this capability with the help of a new Entourage rule (Tools: Rules: New). Choose Specific Header from the first If pop-up menu, type X-Spam-Flag into the text field that follows, and then select Exists from the second pop-up menu. (If your ISP uses a different flag, enter that header in place of X-Spam-Flag.) Under the Then section, specify where such messages should be moved to.

2. Dump Suspicious Attachments

Attached files with extensions such as .exe, .pif, .scr, .bat, .com, .lnk, or .js are often Windows viruses or spyware programs. They may not harm your Mac (unless you're using Virtual PC), but they certainly won't do you any good. Mail's rules ignore attachments, but you can set up an Entourage rule to automatically remove these attachments from incoming messages to a POP account (IMAP accounts don't offer this option).

In Entourage, create a new rule; then choose Attachment from the first If pop-up menu and Name Ends With from the second. Enter the first extension (.exe, for example) and then click on Add Criterion and repeat the process for each extension you want to exclude. From the Execute pop-up menu, select If Any Criteria Are Met. In the Then section, choose Remove Attachments, add a second action, and choose Change Status from the first pop-up menu and Junk E-Mail from the second.

3. Stick to English Sometimes messages that use non-Latin character sets, such as those written in Russian or Chinese, trip up statistical spam filters. If you don't read these languages,

it's a safe bet that such messages are spam. To identify these messages, you need a rule that looks at the messages' Content-Type headers.

When creating this rule in Mail, choose Edit Header List from the If section. In the resulting dialog box, type Content-Type in the Header field, click on Add Header, and then click on OK. Change the Edit Header List pop-up menu to Content-Type, select Contains from the middle menu, and then enter the appropriate header in the text field (see "Spam Dialects").

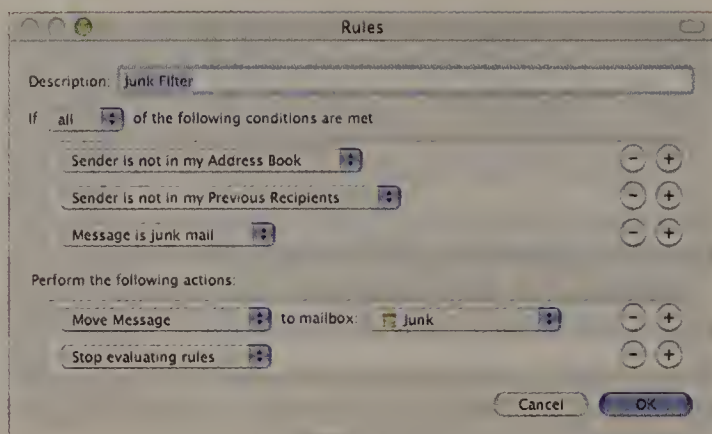
In Entourage, your If statement should read as follows: Specific Header Content-Type Contains appropriate Content Type header.

SPAM DIALECTS

LANGUAGE	APPLICABLE CONTENT-TYPE HEADERS
Arabic	Windows-1256
Chinese	GB2312, Big5, or EUC-TW
Japanese	ISO-2022-JP or EUC-JP
Korean	ISO-2022-KR or EUC-KR
Russian	Windows-1251

Priority Filtering

To catch spam that Mail's default Junk Mail rule misses, create your own rule (as shown here) and put it at the top of the Rules list.



that—a *start*. There's plenty more you can—and should—do to optimize Mail's spam sensitivity.

Go Automatic Mail provides two modes for filtering junk mail. The default—Training mode—simply uses color to distinguish suspected spam from legitimate mail. This lets you easily monitor whether Mail is flagging spam correctly. But once you become comfortable with Mail's choices, you should switch to Automatic mode.

In Automatic mode, Mail moves all suspected spam to a Junk mailbox, letting you largely ignore its existence. And despite the confusing names, switching from Training to Automatic mode doesn't interfere with the training process at all; the Junk Mail filter continues to learn new spam-fighting skills as you correct its mistakes.

To put the filter in Automatic mode, open Mail's Junk Mail preferences, make sure Enable Junk Mail Filtering is selected, and then select the Move It To The Junk Mailbox (Automatic) option.

Tweak Your Preferences While you have your Junk Mail preferences open, I recommend making a couple of other changes to further heighten your spam security.

Because spam frequently includes the recipient's full name, deselect the Message Is Addressed Using My Full Name option. Next, turn on the Trust Junk Mail Headers Set By Your Internet Service Provider option. Some ISPs add a special header (called the X-Spam-Flag header) to incoming messages their servers suspect are spam. By telling Mail to look for this clue, you can increase the Junk Mail filter's accuracy. Even if your ISP doesn't currently offer this feature, there's no harm in leaving this setting turned on.

Preempt Other Rules If you use mail rules to file your incoming e-mail, you may find that Mail misses

a considerable amount of spam. That's because Mail's built-in Junk Mail rule affects only the messages left in your in-box after all other rules have been applied. So, if you have a rule that filters all of the mail sent to your personal account into a special mailbox, the Junk Mail filter will never look at any of those messages. In this case, consider overriding the built-in Junk Mail rule with one of your own.

To create a new rule that mimics Mail's built-in filter, go to Mail: Preferences, click on Rules, and then choose Add Rule (see "Priority Filtering"). When you're done, move the new rule to the top of the list so it runs before any others.

Thin Out Your VIP List You should also keep an eye on Mail's Previous Recipients list. Mail assumes that if you send someone an e-mail, you want to receive the reply. So every time you hit Send—even if it's only to unsubscribe from a mailing list—Mail adds the person to its Previous Recipients list. Because the Junk Mail filter ignores messages from anyone on this list, you could accidentally give approval to any number of unwanted guests. In fact, in previous versions of Mail, just moving a message to any mailbox other than Junk could add its sender to the approved list.

To remove spurious addresses from this list, choose Window: Previous Recipients. Click on any suspicious addresses and select Remove From List. If you find the process of pruning your Previous Recipients list too tedious, or if it results in too many false negatives, you can instruct Mail to ignore this list when filtering. Just open your Junk Mail preferences and deselect the Sender Of Message Is In My Previous Recipients option.

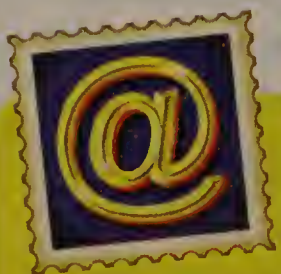
Optimize Entourage's Settings

Entourage 2004 also lets you customize your spam filter to determine how aggressively it filters your e-mail.

Become Less Tolerant Entourage offers three levels of spam filtering—Low, High, and Exclusive. You can access these settings by selecting Junk E-mail Protection from the Tools menu (see "Better Protection").

Although Entourage uses the Low setting by default, High is appropriate for almost everyone. You should choose Low only if the High setting results in too many false positives—and if you can't correct the problem by adding the senders to Entourage's Address Book. Avoid using the Exclusive setting, which filters out all mail from anyone not on your white list. While this is certain to keep your in-box free of spam, it's also likely to clutter your Junk folder with legitimate messages.

Approve Large Groups Adding recipients to your Address Book is a great way to exempt them from your Junk Mail filter. But trying to add everyone with whom you work can be tedious. A simpler solution is to add an entire domain—that of your employer or school, for example—to your white list. To do this, open the Junk E-mail Protection window (under Tools), click on the Safe Domains button, and enter all approved domains, separated by commas.



Tip

Improve Eudora's Spam IQ Like Mail and Entourage, Qualcomm's Eudora 6 uses a statistical spam filter. You can use the Junk Threshold slider (Preferences: Junk Mail) to make the program less tolerant. To determine how low you should go, first open the Mailbox Display panel and activate the Junk option under the Columns heading. A new mail column will appear, showing each message's assigned spam score. Note the scores of any spam Eudora misses and then adjust the Junk Threshold slider to catch them.—ADAM C. ENGST

If you subscribe to mailing lists, you can guarantee that mail from these lists isn't considered spam by using the Mailing List Manager (in the Tools menu). The Mailing List Manager not only helps you filter any related messages into a dedicated folder, but also ensures that any messages other members sent to the list make it through—regardless of whether the senders are in your Entourage Address Book.

Look for Outside Help

What if you've diligently trained your junk-mail filters and fully optimized your settings, but you're still getting a steady influx of spam? Your built-in filters simply may not be accurate enough to handle the problem—especially if you receive hundreds or thousands of spam messages every day. What you need is some external help.

Third-Party Software One of our favorite add-on spam filters is Michael Tsai's \$25 SpamSieve (◆◆◆◆; "Guard Your In-Box," April 2003), a powerful, accurate, and highly configurable statistical filter that works with Mail, Entourage, and other OS X e-mail clients. (It's also included with Bare Bones Software's Mailsmith). Whereas Mail and Entourage let you optimize a few basic settings on their spam filters, SpamSieve provides almost endless opportunities for customization.

Mail users should also consider Benjamin Han's JunkMatcher software (<http://junkmatcher.sourceforge.net>). JunkMatcher is a free Mail plug-in that lets users define wildcard patterns called *regular expressions* to identify spam characteristics that Mail's built-in filters could otherwise miss—such as intentionally misspelled words.

A Better ISP Another option is to switch to an ISP that can take on some of the heavy spam filtering for you. Many ISPs use expensive server-based spam filters that are much more sophisticated than what's available in desktop e-mail clients. Some of these filters tag suspected spam messages so that your e-mail client can take whatever action you choose, while others block spam from reaching you at all. For example, if you own a paid FastMail account (www.fastmail.fm), you can choose what action FastMail takes—to delete, move, or just mark suspected spam—based on the message's spam score, a numerical measure of how similar the message is to confirmed spam. Apple's own .Mac e-mail service also offers excellent spam filtering. Other good choices include Tuffmail (www.tuffmail.com) and Runbox (www.runbox.com).

If switching to a new e-mail provider is out of the question, consider subscribing to a spam-filtering proxy service. A proxy service checks your existing e-mail account for you and runs its own high-powered spam filters on it. You can then set up Mail or Entourage to retrieve your (freshly filtered) mail from the proxy server, rather than your original mail server. This lets you keep your existing e-mail account while benefiting from the superior spam filtering of a much



Spammers versus the Law

Everyone hates spam. It's a drain on your time, bandwidth, and patience. E-mail filters can reduce the time you spend scrolling through your in-box every day, but they can only do so much—and they do nothing to reduce the amount of messages being sent.

But voter outcry has spurred lawmakers to try to find a solution. CAN-SPAM (Controlling the Assault of Non-Solicited Pornography and Marketing Act of 2003) is the result of three years of work by Democratic senator Ron Wyden of Oregon and Republican senator Conrad Burns of Montana. The law, which took effect on January 1, 2004, prohibits many of the worst spam tactics, including the use of false or misleading header information. The law also requires that all commercial mail include a valid mailing address, a clear demarcation that the e-mail is an advertisement, and a way for recipients to opt out of future mailings.

So how does CAN-SPAM measure up so far?

"CAN-SPAM made a lot of things illegal that already were illegal, and increased the penalties for criminals who weren't being caught anyway," says Cindy Cohn, Legal Director of San Francisco's Electronic Frontier Foundation, a group dedicated to protecting technology-related civil liberties.

Cohn points out that fraud and deceptive advertising practices are already crimes. For example, the Buffalo Spammer case, hailed by many as a victory in the war on spam, had nothing to do with CAN-SPAM. Last April, Howard Carmack was tried and convicted under New York's identity-theft law for stealing the identity of two Buffalo-area residents and sending out hundreds of millions of spam messages in their names.

"Spam is a difficult problem to address through legislation," says Cohen. The positive side of the new law, she admits, is that it "spurred law enforcement to go after these people." So far, four of the largest ISPs (AOL, EarthLink, Microsoft, and Yahoo) have filed more than 200 lawsuits against alleged spammers. And in late June, the federal government charged an AOL employee under CAN-SPAM with stealing 92 million AOL e-mail addresses and selling them to spammers.

Under current law, only ISPs and the government can sue spammers.

So what can you do to help the fight? If you have the time, you can report spammers to a higher authority. Although this won't reduce the amount of spam you receive, it can help larger organizations build cases against the most flagrant abusers.

You can report spam to the Federal Trade Commission by forwarding the messages to spam@uce.gov. Many ISPs also offer an address for spam complaints—often at abuse@ispdomain.com. Since the sender information in most spam messages is fraudulent, you should examine the message's header to see from where the message actually originated. (Earthlink offers a tutorial of what to look for. Go to find.macworld.com/0046 to view it). Many ISPs will terminate the accounts of confirmed spammers. Others may use the information you send to improve their spam filters.—JONATHAN SEFF

larger service. Examples of such services are Spam Zapper (www.no-junkmail.com/Individuals.html) and SaferSurf's Spam Guard (www.nutzwerk.com/english/safersurf).

Keep Spam in the Can

Spam is on the rise. But with a bit of effort and the right tools, you can prevent it from taking over your in-box. If you use your built-in tools wisely, remain diligent, and know when to ask for help, you'll remain ahead of the game. □

Contributing Editor CHRISTOPHER BREEN pens Macworld's Mac 911 column and is the author of *Secrets of the iPod*, fifth edition (Peachpit Press, 2004). JOE KISSELL (<http://jk.alt.cc>) is the author of *Take Control of E-mail with Apple Mail* and *Take Control of Spam with Apple Mail* (TidBits Electronic Publishing, 2004). His secret identity is Curator of Interesting Things for InterestingThingOfTheDay.com.

7 PDF Power Moves

Apple has made the process of creating PDF files downright easy. Whereas you used to need a separate application to distill large, graphically complex documents into this handy format, you can now do it right from the OS X Print window just by clicking on a button. That means it's a cinch to pass your company's year-end report or a yard-sale flyer (with the layout intact) around for review.



But to really squeeze the most out of Adobe's Portable Document Format (PDF), you still need the help of a separate application—namely, Adobe Acrobat 6.0 (\$449 Professional or \$299 Standard edition; www.adobe.com). From adding reviewer comments to creating effects such as zoom-ins on pictures, it gives you significant extra capabilities. Here are seven ways to use it to your advantage.

Get a Closer Look

In Acrobat 6.0, you can add a hot button to a PDF that, when clicked on, zooms in on a specific part of a page.

1. Cut PDFs Down to Size

PDFs that are long or loaded with high-resolution images—brochures, for example—can put a real strain on your Internet connection if you have anything slower than a T1 line. Unless you're sending a file to be printed professionally, do everyone a favor and trim the fat. Go to File: Reduce File Size. Make the file compatible with the most recent version of Acrobat possible for the best byte-shaving savings.

2. Set the Initial View

When you send a multiple-page PDF file to clients or colleagues, only a single page appears by default in the Acrobat window. That makes it awfully easy for them to miss the rest. The Pages panel is the solution.

Go to File: Document Properties, and click on Initial View in the left-hand column. Under Document Options, choose Pages Panel and Page from the Show menu, Single Page from the Page Layout menu,

and Fit Width or Fit Page (depending on your document) from the Magnification menu. Click on OK and save your file. The next time that document is opened, the first page will take up the majority of the Acrobat window, but the viewer will also see thumbnails of the other pages to the left.

3. Take Charge of Comments

If your documents are reviewed by a group of people, you'll appreciate Acrobat's ability to add comments to PDF files. But the more comments you have, the more unruly they can get. Here are some lesser-known ways to control them in version 6.0.

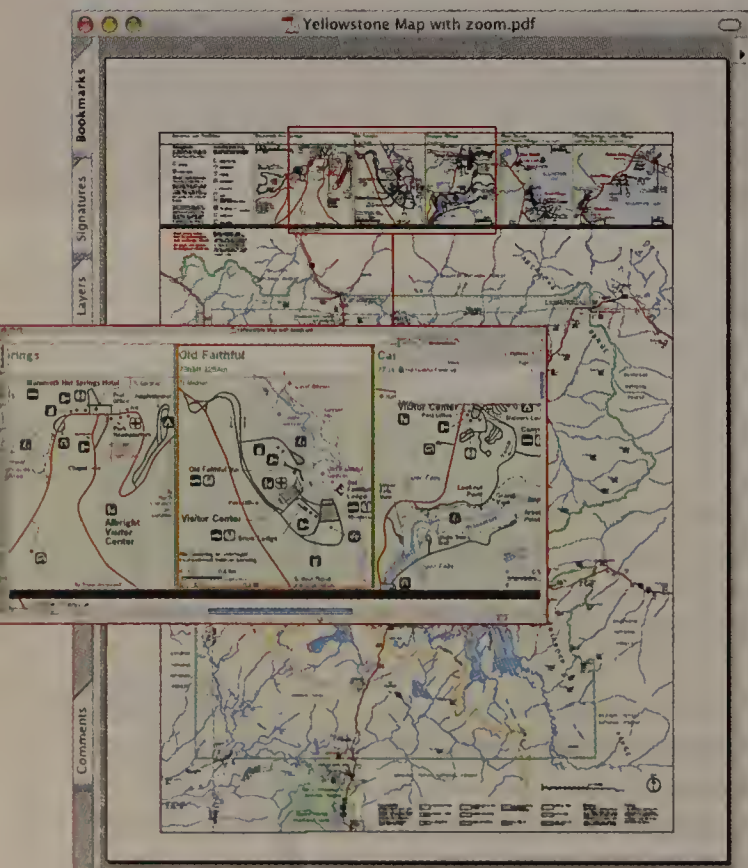
Show or hide comments based on check marks visible only to you. (This discretion is handy when check marks indicate disapproval of your boss's contributions.) To make a for-your-eyes-only check mark, control-click on the comment, and then choose Mark With Checkmark from the resulting drop-down menu. For an opinion everyone can see, control-click on the comment, select Mark With Checkmark, control-click again, choose Set Status, and then select a status: Accepted, Rejected, Cancelled, or Completed. For those times when you want to be absolutely certain that a comment won't circulate any further, control-click on it and choose Delete Comment from the drop-down menu.

4. Reclaim Your Shortcuts

Most people who use keyboard shortcuts do so to save time. That's why it's particularly irritating when shortcuts change and you have to spend time revising your methods. When you launch any version of Acrobat 6.0, single-key shortcuts, such as H for the Hand tool and V for the Select Text tool, don't seem to work. But you can revive them. Go to Preferences (⌘-K): General and select the Use Single-Key Accelerators To Access Tools option.

5. Banish Acrobat from Microsoft Office

If you have Acrobat 6.0 Professional and Microsoft Office v. X, you may have noticed a small Acrobat PDF toolbar in Excel, PowerPoint, and Word.





TRY THIS



The file responsible for this toolbar can become corrupt, causing intermittent problems, such as slower performance. To permanently delete the toolbar, search your Mac for all instances of PDFMaker.xla, PDFMaker.ppa, and PDFMaker.dot, and delete those files. You'll never see the Acrobat PDF toolbar in Office apps again.

6. Zoom into the Picture

Say you're working on a navigational manual in Acrobat. You'd like to show a close-up section of a map along with the entire thing, but a close-up wasn't in the original layout. There are two ways you can help a viewer zoom in. One is simple; the more complex version is in the next tip.

Go to View: Navigation Tabs: Bookmarks. Use the Zoom In tool (it looks like a magnifying glass) to focus in on the section of the map that merits a close-up view. In the Bookmarks pane on the left, click on Options and select New Bookmark. Change the bookmark's name from Untitled to something that indicates its purpose, such as Close-up of Mammoth Hot Springs. Now viewers of your PDF can click on this bookmark to zoom in.

7. Make Advanced Zoom Moves

Here's how to turn part of a PDF page, such as a map, into a hot button (complete with a descriptive tool tip) that viewers can click on to zoom in. Go to View: Navigation Tabs: Destinations. In the resulting Destinations pane, go to Options: Scan Document. Then select Options: New Destination. Click on Untitled and give the destination an appropriate name, such as Old Faithful Close-up. Click on the Zoom In tool and fill the screen with the area you want to show close-up. Control-click on the name of your destination in the Destinations pane and choose Set Destination.

Now go to Tools: Advanced Editing: Forms: Show Forms Toolbar. Click on the Button icon in the Forms toolbar, and you'll see a crosshair appear on the PDF. Draw a rectangle around the area you want to zoom in on. The Button Properties dialog box will appear. In the General tab, name the button Old Faithful Close-up, write a tool tip (such as "Click here to zoom in on Old Faithful map"), and set the Form field to Visible But Doesn't Print.

Now click on the Appearance tab. Choose an appropriate border color and thickness, but choose No Color as the fill color. In the Text section, choose the font size, text color, and font that work best for your map. Click on the Options tab. Set the Layout menu to Label Only, the Behavior menu to Push, and the State menu to Up.

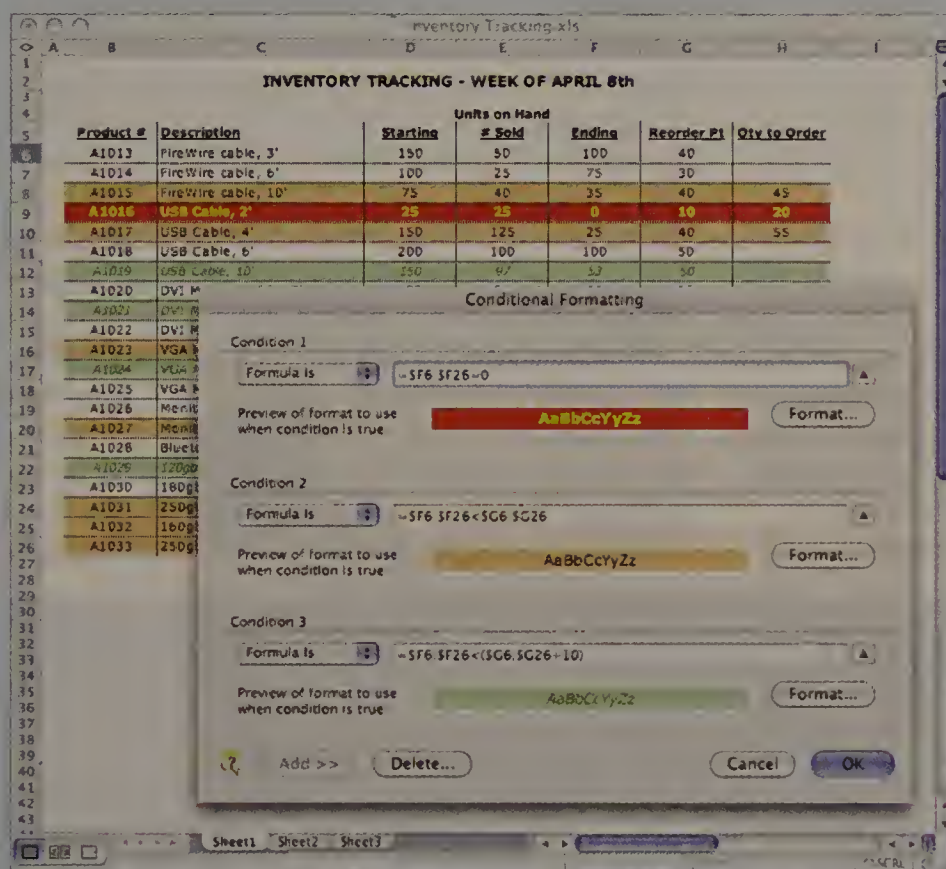
Click on the Actions tab. Select the Mouse Up trigger and the Go To A Page In This Document action. Click on the Add button and select the Use Named Destination option. Click on the Browse button and

Keep Excel Alert

Microsoft Excel may not come with an alarm clock, but conditional formatting comes close. One of Excel's hidden gems, this feature can change the font, border, and patterns of a cell (or range of cells) in response to the value of a cell (or cells) or the results of a calculation. This is a great way to automatically highlight low inventory, top sales personnel, quarterly sales records, low employee vacation hours, or anything else you'd like to keep an eye on.

Say you have a spreadsheet that tracks inventory levels. You want to know when any item approaches or reaches its reorder point, and you need to know if you run out of anything. It's possible to apply as many as three conditional formats to any range of cells. That means you can create three different looks for inventory alerts (see "Order Up!"). The red row indicates an out-of-stock item, the orange rows indicate items that have fallen below their reorder points, and the green italic rows indicate items within ten units of their reorder points.

To set these up, I chose Format: Conditional Formatting. In the resulting dialog box, I set the pop-up to Formula Is, and typed the formula I wanted to have evaluated, starting with an equal sign (=). The columns must be absolute references (preceded by a dollar sign [\$]). In other words, the columns won't change as the formula is applied to the range. The rows are relative references. In other words, the rows will vary across the selected range. You must use this mix of absolute and relative references so conditional formatting will apply the formula to all rows in the range. Click on the Add button to create additional conditions.—ROB GRIFFITHS



Order Up! Use conditional formatting to assign three different looks to data in response to a calculation or cell value—for example, when an item needs to be reordered or goes out of stock.

select Old Faithful Close-up (or whatever you've named your destination). Click on OK twice; then click on Close. The next time you open the document, the hot button will be active (see "Get a Closer Look").

TERRI STONE is a Macworld senior editor. JENNIFER WILLS is a principal of W+W Design.

Photograph the Invisible

Just as our ears can't hear an ultrasonic dog whistle, our eyes can't detect short wavelengths of infrared (IR) light. Most digital cameras, however, *can*. And the results can turn an ordinary landscape into an extraordinary vision—with fluffy white clouds juxtaposed against ominous dark skies, and trees bathed in a silvery glow.

In the film era, shooting infrared photos required special film and a trial-and-error approach to calculating the correct exposure. Digital IR photography, however, is surprisingly easy.

What You'll Need

To test your digital camera's infrared sensitivity, you'll need a handheld electronic infrared-emitting device—better known as a TV remote control. Turn on your camera as though you were preparing to take a picture, and point the remote at its lens. As you watch the camera's LCD, press any button on the remote. If you can see a pulsing white light, your camera should be able to capture IR photographs. (If you have a camera that can't preview shots on its LCD—such as Canon's Digital Rebel—you'll need to take a picture while pressing the remote's button. Then review the photo to see whether a white light appears in it.)

You'll also need a way to block out visible light so the camera's imaging sensor (the CCD) can pick up the scene's infrared rays. To do this, attach an IR filter to your camera's lens. The lens barrels on most midrange and high-end digital cameras offer threads for attaching filters. For my Sony Cyber-shot DSC-

F828 camera, I used a 58mm Hoya Infrared Filter R72, which you can purchase from most photo dealers for around \$50.

If your camera can detect infrared light but can't accept screw-on filters, you can still shoot in IR—just hold an IR filter tightly against the lens when you shoot. To avoid shaking the camera, consider using the \$10 Cokin Digi-Holder (www.cokin.com/ico6-03.html), which screws into your camera's tripod mount and holds a filter in front of your lens.

Taking the Shot

There are a few things to keep in mind when you're setting up an IR photo shoot.

Keep It Steady Because an IR filter is almost completely opaque, your photo will require a long exposure—a half second or more, even on a sunny day. To ensure sharp shots, mount your camera on a tripod.

If you don't have a tripod, that's OK. Here's a workaround I use: Turn on your camera's self-timer mode—the same mode you use to include yourself in a picture. Next, set your camera on a rigid surface and compose your shot. Press the shutter release and carefully pull your hands away from the camera. Because you won't be touching the camera when the timer trips the shutter, you won't risk shaking the camera.

Kill the Flash To compensate for the dark filter in front of the lens, your camera will want to use its automatic flash. To prevent this, turn off your camera's flash before shooting. On most cameras, you do this by cycling through your flash modes until you find one represented by a crossed-out lightning bolt.

Choosing Your Subject

Once you've set up your camera, you're ready to start shooting. Here are a few subjects that look especially good in IR light.

Foliage Chlorophyll strongly reflects IR light, giving deciduous trees, ferns, and other bright-green plants a beautiful, silvery glow. Conifers, however, don't look quite as dramatic.

Clouds Bright skies turn dark in IR photos, and they create a striking contrast with billowing cumu-

Surreal Vision

Dark skies and silvery, shimmering foliage are hallmarks of IR photography.





Make GarageBand Rock

GarageBand 1.1, Apple's new digital music studio, offers plenty of opportunities to rock out. But if you're spending too much time tweaking settings and not enough creating music, these tips will help get you back in the flow.

Create Slimmer Files In GarageBand, blue loops represent recordings of real instruments, and green loops represent software instruments. Software-instrument loops are more flexible because you can edit the notes and instruments. The trade-off is that they require more processing power. Once you're happy with a green loop, you can reduce the drain on your processor by converting it into a noneditable loop. Just hold down the option key while you drag the loop into a composition. The loop will turn blue.

Fine-tune Track Volume Once you've completed your GarageBand song, you can fine-tune the volume of individual tracks to get the mix just right. The volume slider in the Mixer column can raise or lower the volume for a whole track, but there's a way to attain even more control: for each track you want to adjust, click on the track's down arrow in its Tracks column. You'll then see a volume curve (or, more accurately at this point, a flat line). Just as in iMovie, you can click on the line to add control points and then drag those points up and down to adjust the volume of the track over time—ideal for fading into or out of a loop.

Customize the Loop Browser GarageBand's Loop Browser (⌘-L) displays a series of buttons for choosing loops. The loops are organized by instrument, genre, and mood. (To see all the buttons, you may need to click on the gray bar above the browser and drag it upwards.) But you're not stuck with this arrangement. If you want to move the button you use most often to the top of the list, just click on the button and drag it on top of another button at the top of the window. The two buttons will change places. If you ever want to return to the default layout, go to Preferences: General: Keyword Layout and click on Reset.—XANDER SOREN, GARAGEBAND PRODUCT MANAGER

lus clouds. Puffing smokestacks—while not typically a favored photographic subject—also make for dramatic shots, and water appears nearly black.

Loved Ones Skin takes on a smooth glow in IR photos, and blemishes all but disappear. On the downside, pupils have a tendency to disappear, and lips may look too pale. Not everyone loves the results of IR portraits, but people definitely won't mistake these images for ordinary snapshots.

Processing Your Shot

When you first view your IR photos, you may be disappointed with their appearance. The photos will probably be dark, and they may have a strong purple or red tint. But these problems are easily corrected in just about any image editor.

The first thing you'll want to do is strip out the tint and give your photos that classic black-and-white look. If you use Apple's iPhoto (\$49 as part of the iLife Suite; www.apple.com), open the photo in Edit mode and click on the B&W button. If you use Adobe Photoshop Elements (\$99; www.adobe.com), open the photo and go to Enhance: Adjust Color: Remove Color.

Next, you'll want to add visual drama by adjusting the photo's brightness and contrast. To do this in iPhoto, use the Edit window's Brightness/Contrast sliders. But you'll have more control—and get better results—with the Levels command in Photoshop Elements (Enhance: Adjust Brightness/Contrast: Levels).

In the Levels dialog box, drag the black- and white-point markers (the small triangles located beneath the histogram) to the outer edges of the histogram, where the image data begins (see "On the Level"). Then click on the gray triangle, which represents the image's midtones, and drag it to the left or the right as necessary to add punch to the image.

A quicker—but less precise—option is to use Auto Levels (⌘-shift-L), which automatically adjusts these values according to Photoshop's own calculations.

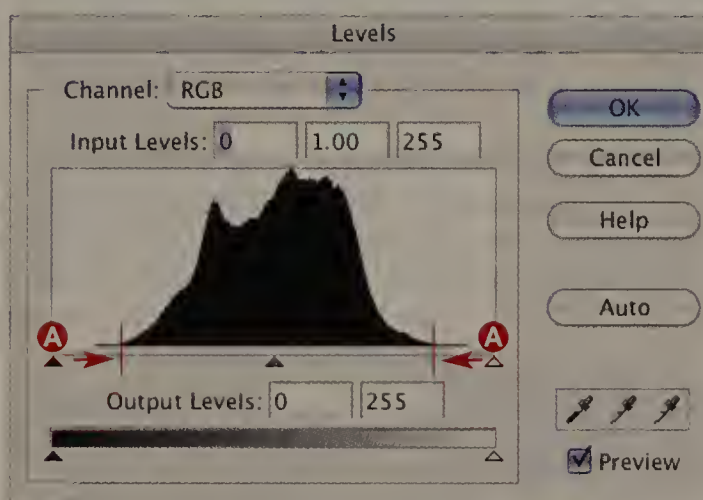
Beyond Infrared

Here's another project you can try with IR photography: combine a full-color photo and an IR photo to create a beautiful, hand-tinted look.

First, mount your camera on a tripod and take two photos of a scene—one with the IR filter in place, and one with it removed. Be careful not to bump or move the camera between shots.

Next, open the two shots in Photoshop Elements or Photoshop CS and optimize the IR photo as described previously.

Switch to the full-color image, and make sure the Layers palette is visible on the right side of the screen. (If it isn't, drag it from the toolbar's Palette Well.) Press the shift key, and drag the Background layer from the color image's Layers palette into the window containing your IR image. This step aligns the two images in one window.



On the Level To add life to your finished images, move the white- and black-point markers **A** to the edges of the histogram in the Levels dialog box.

Examine the Layers palette in the combined document. Layer 1—which contains the newly imported color image—should be highlighted. Open the Filter menu and choose Blur: Gaussian Blur. To create a heavy blur, use a Radius setting of around 20 pixels and click on OK. Press ⌘-U to open the Hue/Saturation dialog box, and then drag the Saturation slider about 40 units to the right to exaggerate the image's colors.

Finally, return to the Layers palette, verify that Layer 1 is still selected, and drag the Opacity slider (in the top right corner of the palette) to the left until the IR layer begins to show through. Your finished photo will look as though you'd spent hours hand-coloring it.

Contributing Editor JIM HEID is the author of *The Macintosh iLife '04* (Peachpit Press/Avondale Media, 2004). He publishes iLife tips at www.maclife.com.

Make Workflow Flow

Writing on the backs of photographs with a soft pencil used to be an everyday practice in the graphic arts. How else would the page designer know what caption to give a photograph? Sharing information about pictures and documents is essential for a successful publishing workflow—but where's the soft pencil in an all-digital world? It's called *metadata*, and it's a tool that you'll soon find hard to do without.

Data about Data

Metadata can include almost any information that can be stored as text: keywords, captions, descriptions, copyright information, related Web sites, and more. Metadata travels with your file, and you can call it up whenever you need it. Most digital cameras today automatically save metadata with every snapshot, including a date-and-time stamp and an exposure. Some cameras log a unique ID code so you can tell which camera shot a particular image.

And metadata isn't just for photographic files. Adobe Photoshop, Acrobat, Illustrator, InDesign, and GoLive can all handle metadata. So you can add keywords to InDesign and Illustrator documents and PDF files, and later search your hard drive for those files without launching their respective programs.

It's Easy to Add Data

Different applications handle metadata in different ways. (And some programs, such as QuarkXPress, hardly support metadata at all. You'll need A Lowly Apprentice Production's \$180 XPert Tools Pro [www.alap.com] to read and display metadata in XPress.) In Adobe's Creative Suite (CS) applications, metadata is hidden inside or alongside files, in a format called XMP (Extensible Metadata Platform). This is an open

XML-based standard that some other applications (mostly asset-management programs) support. You can see and edit a document's metadata by choosing File: File Info in any of the Adobe CS programs—except Acrobat, where you choose Advanced: Document Metadata (see “Add Metadata”).

The File Info dialog box offers several panels full of metadata fields along its left side. The two Camera Data panels contain read-only information, untouchable by anything but a digital camera. You can edit most of the other fields, but you'll probably focus on the fields in the Description panel, including Document Title, Keywords, and Description.

Each metadata field has a small fly-out menu next to it, and each menu shows metadata recently added to that file or others—helpful when you want to apply the same metadata, such as your name, to more than one file. If you add a keyword to an InDesign file, that keyword will appear in the fly-out menu in the File Info dialog box of Illustrator and Photoshop files.

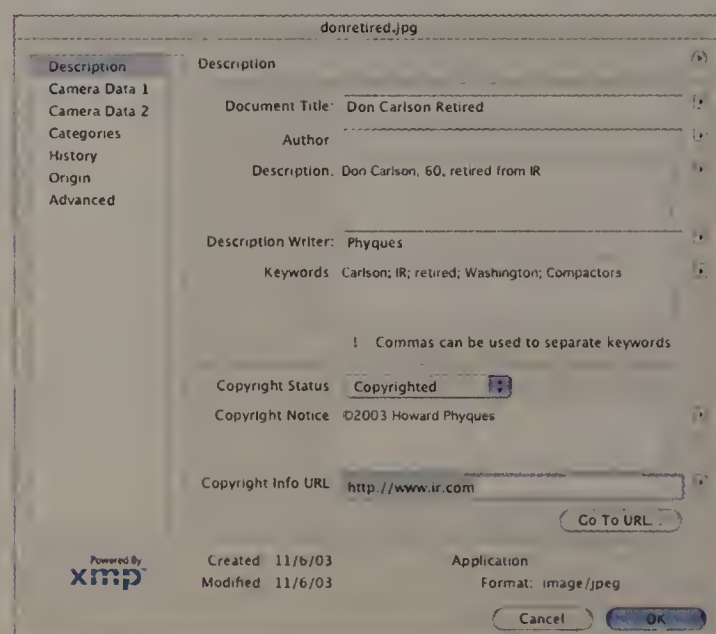
You can use Pound Hill Software's free MetaLab utility (www.poundhill.com) to create your own panel full of custom metadata fields. For example, you can build a pop-up menu with a list of internal account codes. Then, if you use the File Info dialog box to apply one of the codes to each of your files, you can later search for files by their account code.

Because these applications save the metadata inside your files, anyone who receives them can open the File Info dialog box and see what's there. So if you place your Web page's URL in a JPEG's metadata and then e-mail the file to someone, the recipient can figure out how to get in touch with you. Or if you put your name in an Illustrator file's metadata before sending it to a magazine for publication, the artist-credit information is always available. (Of course, you can't force anyone to *look* at the metadata, but at least it's there.)

Some metadata travels farther than you might expect. If you use InDesign's File Info dialog box to add a description of your document (such as “brochure with dog on front”), this information is

Add Metadata

Choose File: File Info in Photoshop, Illustrator, or InDesign (or Advanced: Document Metadata in Acrobat 6) to view and edit a file's metadata—from keywords to copyright information.





TRY THIS

Kern in Illustrator

Illustrator CS is one of the few programs that let you kern a character against the margin, not just against another character. This is useful for getting drop caps to align correctly. All characters have white spaces called *side bearings* that keep them from touching adjoining characters. When you create a drop cap, its left side bearing makes it appear indented from the margin. To align it flush left, place the cursor to the left of the drop cap and use the manual kerning commands (option-right arrow and option-left arrow) to move it over. —JIM FELICI

embedded in any exported PDF file that includes that InDesign document. You can then use Acrobat's Search feature to find all the PDF files on your hard drive, and even on the server, with the term "dog on front" embedded. Because Acrobat searches metadata along with the text that actually appears in the PDF file, it'll find your exported file.

The flip side of this is that if you include personal or sensitive information in your metadata, you may want to strip it out manually with Acrobat or Photoshopper before sending the PDF file off into the world.

File Browser Control

You can also use Photoshop's File Browser to read and edit metadata. This works for not only Photoshop images but also InDesign, Illustrator, GoLive, and PDF documents. To work with files that aren't in the usual Photoshop formats, choose Unreadable Files from the File Browser's View menu (see "Browse for Anything"). If you choose a file that can't handle XMP metadata (such as a Microsoft Word document), Photoshop will politely decline to deal with it.

The File Browser trumps the File Info dialog box for three reasons. First, it enables you to see and edit metadata without opening the file. Just click on a document, and the metadata appears in the File Browser's Metadata palette (except for keyword metadata, which appears in the File Browser's Keywords palette). If you can't see the metadata fields you're looking for, select Metadata Display Options from the Metadata palette's fly-out menu. A pencil icon marks the editable fields; just click to the right of a title to add to or change the text.

The second advantage of the File Browser is that it allows you to apply metadata to more than one file at a time. For example, you can apply the same copyright notice to 50 Photoshop, Illustrator, and PDF files by selecting them all in the File Browser and using the File Browser's Metadata and Keywords palettes. (Beware—you can't undo this action.)

The third benefit is that, using the File Browser's Search feature, you can locate files (again, any XMP-aware files, not just Photoshop images) that contain specific metadata. If you add color details to the Description metadata fields of a folder full of Illustrator files (for instance, "blue car," "red truck," and so on), you can later search for the word *blue* and locate all your blue illustrations. Without metadata, you would have to look at each file individually.

When you find the file you're looking for, double-click on it to open it in Photoshop. Or control-click on the file to choose the opening application.

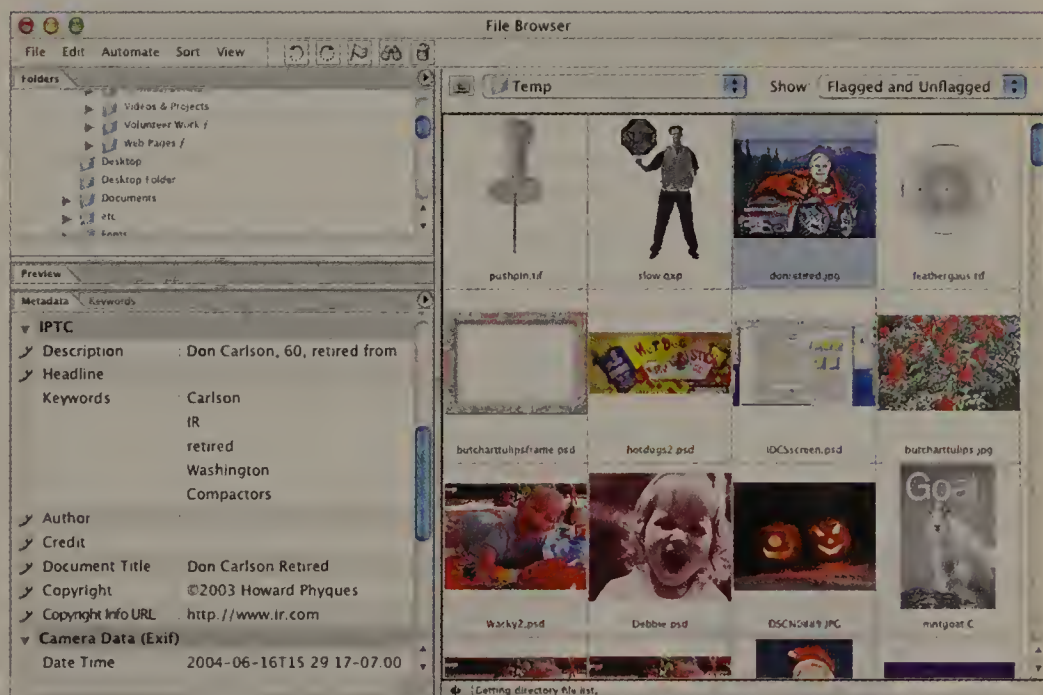
Extract Data

Now that you've added metadata to your files and images, you're ready to retrieve the information. You can always open a file's File Info dialog box or the File

Browser to see the metadata, but when you're inside a page-layout program, you'll need another way to recall metadata from imported images.

There are two routes to this hidden information in InDesign. After selecting an imported graphic on your page, open the Info palette and choose File Info from the fly-out menu, or open the Links palette and choose Link File Info from that palette's fly-out menu.

Save yourself time and avoid typing errors by selecting a field and copying it to the Clipboard. Say someone added a caption to an image in Photoshop: you can copy that caption and paste it into a text frame in InDesign—no more captions on sticky notes that get passed from person to person.



A bug in InDesign prevents you from copying data from the Link File Info dialog box more than once. Your only workaround (and it's a bad one) is to close the InDesign document and reopen it.

Better Than a Pencil

It may take you a while to become comfortable with metadata, but once you do, you'll never want to go back to pencil scribbles. Used properly, metadata is a crucial part of the digital workflow. □

Contributing Editor DAVID BLATNER is a coauthor of *Real World InDesign CS* and *Real World Photoshop CS* (both from Peachpit Press, 2004). You can find him at www.moo.com.

Browse for Anything

Photoshop's File Browser can display metadata from a wide variety of file types, including Illustrator, PDF, and InDesign. The Metadata and Keywords palettes let you edit that information for multiple files at the same time.

Inside AirPort Express

In true Apple fashion, the \$129 AirPort Express is about a half dozen ideas rolled into one small, white widget. The size of a power adapter for an iBook or a PowerBook, it can act as the center of a wireless network, an extension to an existing network's range, a way to listen to your iTunes music through your stereo, and a wireless printer-sharing device. Here's how to get started with an AirPort Express.

Simple Setup

Essentially, the AirPort Express is a smaller version of the AirPort Extreme Base Station, so you can use it to create a wireless network from scratch. Plug it into the wall, connect it to your DSL or cable

modem (or to an Ethernet hub via an Ethernet cable), and then use the included AirPort Express Assistant application to configure it on your Mac. In just a few minutes, you'll be able to connect your AirPort-equipped laptop to the Internet via a fast, wireless connection.

For business travelers who've gotten used to working wirelessly, being tethered to a short (and often inconveniently placed) network cable in a hotel room can be infuriating. This is where the AirPort Express's small size is a huge advantage: just toss one into your carry-on bag, and then plug it into the wall and the broadband port when you get to your hotel room. (Note that some hotels lock a connection to a single computer, and may not allow your AirPort Express and laptop to connect to the Internet.)

You can set up as many as five different profiles (collections of network settings for the AirPort Express) with the AirPort Admin Utility application. Just choose Profiles from the Base Station menu to save and switch between settings. For example, you can have one profile for use in hotel rooms and another for when you're at home.

AirPort Express also has a USB port and the same USB printer-sharing features as its Base Station cousins. (You can even charge a fourth-generation iPod or an iPod mini via the USB port.) So if your family, classmates, or coworkers share a printer, you can place it in a central location and attach it to an AirPort Express, making it available to everyone on your network. The shared printer will appear in the Printer Setup Utility printer list; if you don't see it, click on Add, select Rendezvous, and then select the printer.

Working It In

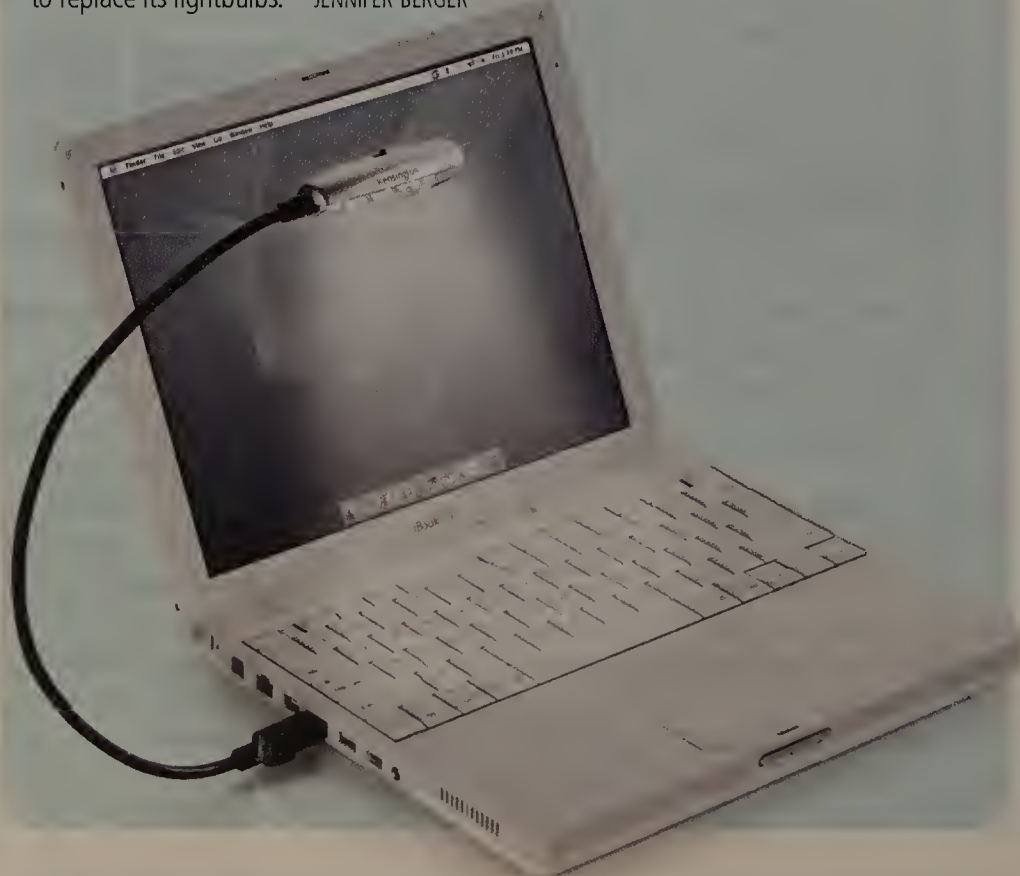
The AirPort Express can be either the star of or a shiny addition to your wireless network. For example,



CHECK IT OUT

FlyLight 2.0

It's happened to us all: You're typing away in coach when the in-flight movie comes on. Everyone lowers their window shades, and, suddenly—if you're one of the many unlucky souls who own a PowerBook that doesn't have a backlit keyboard—you can't see what keys you're pressing. A little, not-too-bright light that plugged into your USB port sure would come in handy—maybe one just like Kensington's FlyLight 2.0 (\$20). The FlyLight now has LED bulbs that use only 90 seconds of battery life per hour, according to the company. It also lets you dim the light to a less-intrusive brightness, and it beams a pleasant, glowing circle onto your keyboard without leaving the outermost keys in the dark. The gooseneck lets you focus the light at just the right height, and you never need to replace its lightbulbs.—JENNIFER BERGER



GO TO WEBLOG:

For more information and online discussion about the AirPort Express, go to Macworld.com's Editors' Notes Weblog (find.macworld.com/0056).

you can use the AirPort Express in concert with an AirPort Extreme Base Station or another AirPort Express to extend the range of your wireless network. It will relay the main base station's wireless signal, helping you bring Internet connectivity to dead spots in your home, office, or school.

To enable this feature, you'll need to use WDS (Wireless Distribution System), either by following the steps in the AirPort Express Assistant or, for the more technically inclined, via the WDS tab in the AirPort Admin Utility. It's much easier to set up with the Assistant, which changes the appropriate settings on both your main and your remote base stations at once.

First, connect to the AirPort Express via AirPort. (If you can't see it for some reason, use a pen or a paper clip and press the AirPort Express's tiny reset button for five seconds. After about 30 seconds, it will reappear on your list of AirPort networks with a generic name beginning with the words *Apple Network*.) Then launch the Assistant, select **Connect To My Current Wireless Network**, select **Extend The Range Of My AirPort Wireless Network**, and follow the instructions from there.

If you decide to use the AirPort Admin Utility instead, you'll have to deal with a few different concepts: *relay* and *remote* base stations. Base stations at the edge of a network are remote stations. Base stations that are both receiving data from a base station and relaying it to even more remote base stations are relay stations.

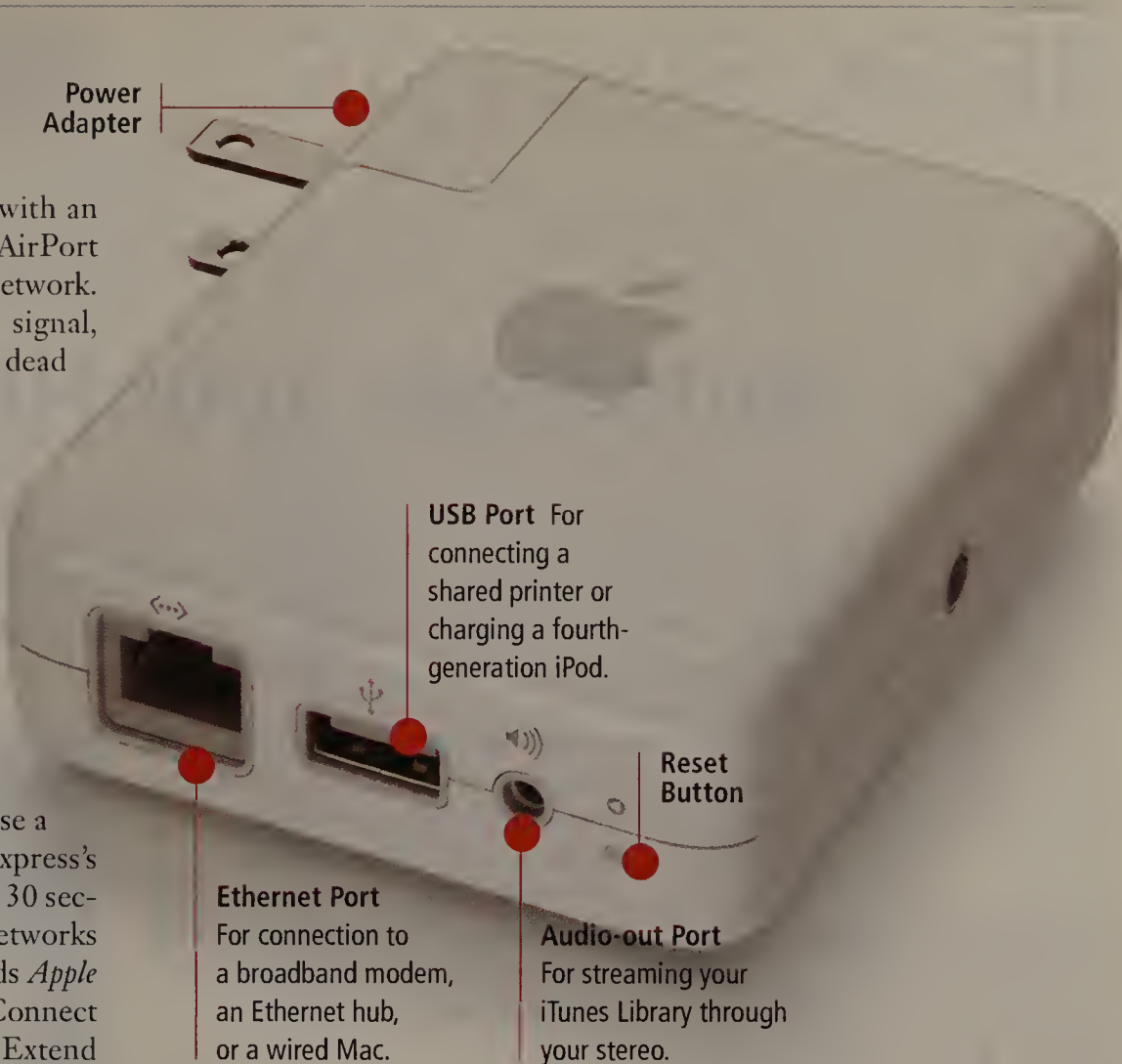
Regardless of how you set it up, if you're running an AirPort Express in Remote mode, you can also use a separate Internet-sharing router and turn those features off on the AirPort Express—or bypass the AirPort Express and use an AirPort Extreme Base Station.

AirTunes in Action

There's one jack on the AirPort Express that will probably sell more AirPort Expresses than any of its other features—the audio-out jack.

The AirPort Express lets you listen to your iTunes library, even if it's on a Mac that's rooms away, through your stereo speakers. It will work with any set of powered speakers or any stereo with an analog- or optical-audio input.

To connect to an AirPort Express and use AirTunes, just get it on your network—either by connecting it via Ethernet or by connecting it to your existing AirPort network. If you don't plan to use the AirPort Express as a remote or relay base station, you can configure it to use your existing wireless network via the AirPort tab in the AirPort Admin Utility. Just set the **Use Base Station To** pull-down menu to **Existing Wireless Network**, and then enter the name and password for the network.



You'll also need to go to the Music tab in the AirPort Admin Utility and select **Enable AirTunes**. Assign the AirPort Express the name of the speakers you're broadcasting through and, if you like, a password to prevent other people on your network from playing music through your AirPort Express.

Once you've done this, launch iTunes 4.6 or later, and you'll see a pop-up menu in the lower right corner of the main iTunes window. By default, this menu is set to **Computer**, and iTunes will play its music through your Mac. But that menu will also list all the AirTunes-enabled AirPort Expresses on your local network. Just select one, and enjoy the music. (The sound won't come out of your Mac; it will come out of the speakers attached to the AirPort Express.)

This means that you've got to keep that Mac on and iTunes open to keep the music playing. (This is different from using a device such as Slim Devices' Squeezebox, [iMacworld; April 2004], which you operate via an infrared remote control and which has its own display to show you what's playing.)

Something in the Air

The AirPort Express is remarkable because it puts the features of several different networking devices into one compact product. With its AirPort Express Setup Assistant, Apple has done a good job of simplifying the setup process of a complex product. It's a good idea to study what the AirPort Express can do in detail before deciding whether one of these small white boxes will fit into your personal wireless network.

JASON SNELL is *Macworld's* editor in chief.

Automate Your Home

Lights that go on and off, dim, and brighten, all by themselves. Appliances that respond to the time of day and the presence or lack of daylight. Coffeemakers that turn themselves on and off. You still can't order an Earl Grey (as *Star Trek's* Captain Picard does), but you can have your house obey your commands.

This is the automated house, and your Mac is in control of it. Amazing as it sounds, the automated house isn't that difficult to create. With X10 technology, it doesn't require ripping up anything in your house—there are no new wires. It just requires some simple, inexpensive modules plugged into your power outlets and some software on your Mac.

X10 Software for Mac

Indigo, from Perceptive Automation (\$90; www.perceptiveautomation.com/indigo/), is the newest (launched in 2003) and the most powerful of the X10 applications. It's easy to use and flexible, with features that go beyond simple timed events.

Indigo can send you e-mail messages when certain events occur (such as a power failure), and you can control the system with e-mail. For example, you can set Indigo to start heating your hot tub just by sending it an e-mail message.

Indigo also lets you control your X10 system using a Bluetooth-equipped Sony Ericsson phone. Indigo supports AppleScripts, but you can do so much using menus and buttons that you don't have to write any AppleScript code to come up with some advanced triggering and control mechanisms.

Indigo was written specifically for Mac OS X—there is no Classic version, which means that you can't run it on an old Mac. [As of February 2004,]

X10 in Action

Eager to try a project? Read our step-by-step instructions for using an old OS 9 Mac and X10 to light a lamp whenever someone walks down a hallway, and to turn on the television news every weeknight. You'll find them in "Old Mac, New Tricks: Turn Your Mac into a Home-Automation Command Center" (find.macworld.com/0032).—SCHOLLE SAWYER McFARLAND



By the Book

This article is an excerpt from *Mac Toys* (Wiley Publishing, 2004), by John Rizzo and Scott Knaster. You can find the book at www.wiley.com or your local bookseller.

Indigo was the only X10 application that supported the \$35 PowerLine USB computer interface from SmartHome (www.smarthome.com), which means it doesn't need a USB-to-serial converter cable. It also supports CM-11 (sometimes branded as Active-Home), from X10 (\$50; www.x10.com), and Marrick's \$99 LynX-10 PLC (www.marrickltd.com). Indigo does not download commands to the CM-11 interface module, but it can do things the module can't. For instance, you can have Indigo automatically send you an e-mail message when an event occurs.

Indigo uses a simple user interface to create complex control situations. On the left side of the main window are four buttons labeled Devices, Trigger Actions, Time/Date Actions, and Action Groups. With Devices selected, you see a list of X10-controlled devices, such as lamps and appliances, and X10 sensors, such as motion detectors and thermostats. Indigo gives you some samples, but you can add your own with the New button. Double-click on a device to enter its X10 address and other settings. To control a device manually, click on it once to select it and use the controls at the bottom of the main window.

Click on the second button down, and you get a list of *trigger actions*—actions that are responses to events. Instead of writing scripts, you choose items from pop-up menus. When you first install Indigo, you'll see a list of sample trigger actions, including "power

The Nuts and Bolts of X10

In a world where technical standards change faster than campaign promises, X10 is an exception. Developed almost 30 years ago, X10 owes its remarkable longevity to its low cost, reliability, and, well, longevity. X10-based home-automation systems can be simple arrangements that don't include a Mac, or elaborate systems that control almost every house function via computer. A computerized setup includes at least two components:



1. A plug-in interface **A** that sends signals over existing electrical wiring in response to commands from a Mac running X10 software like Indigo or Sand Hill Engineering's XTension (\$190; www.shed.com).

2. An X10 module **B** that's plugged into a wall outlet or is hard-wired into the building's electrical grid, and responds to signals from the interface. Each module controls one lamp or other device **C** and is designated by a two-part code (a letter, A through P, and a number, 1 through 16) that you assign. Newer modules can send signals back to the computer through the interface. So, for example, you can program your Mac to turn on the kitchen lights and coffeemaker when you trigger an X10 motion detector every morning.

Home automation is an excellent way to put your dusty old Mac to work, especially if you want to keep it running 24 hours a day and don't want to tie up your main computer. If it's too ancient to run OS X, the \$90 Classic version of XTension runs on System 7.1 or later. You can find X10-compatible hardware at online vendors, including X10 (www.x10.com), Radio Shack (www.radioshack.com), and SmartHome (www.smarthome.com). Sand Hill's and other vendor Web sites also offer tips and links for home automation newbies. —FRANKLIN N. TESSLER

failure e-mail," "office light on," and "aquarium motion." Double-click on an action, and you get a dialog box with three tabs: Trigger, Condition, and Action. The Trigger tab lets you define what causes the action. The Type pop-up menu lets you select triggers such as an X10 command, a change in a device's state, receipt of an e-mail message, an application starting up, a power failure, and others. For each of these, you select the circumstances under which to activate the trigger.

The Condition tab puts further limitations on the trigger by letting you assign a time of day and specify whether various variables are true, false, greater than or less than, or follow other Booleans. Under the Action tab, you'll tell Indigo what to do in response to the trigger. The Type pop-up menu lets you select various types of actions, which you will specify after you select it from the menu. Included in this menu are Send E-mail, a way to notify yourself when something happens, and AppleScripts, which let you further customize your system.

Back in the main Indigo window, the Time/Date Actions button lists items you can schedule for regular occurrence, such as turning lights on and off or dimming them. You can set conditions on these occurrences, so that they will or won't occur if certain actions are performed or certain sensors get a specific reading. For example, you can tell Indigo to start your

sprinklers at 3 p.m. unless your outdoor rain sensors tell Indigo that it's raining.

Tip: One of Indigo's powerful features allows you to set an action to occur at sunrise and sunset, rather than at a specific time.

The last of the four buttons, Action Groups, lets you create settings for a combination of devices. You might create an action group called Dinner Party that turns on certain lights in multiple rooms and dims them to preset levels, while it disables some of your other automatic actions.

Another interesting Indigo feature is the ability it offers to use a Bluetooth-enabled Sony Ericsson mobile phone as a remote control. To accomplish this, Indigo uses the \$20 Salling Clicker application from Salling Software (find.macworld.com/0050). Salling Clicker lets you run your Mac from the phone or a Palm handheld device. With Indigo's scripts, you can also use the phone to control Indigo, and therefore your house.

Indigo comes with extensive documentation in the Help menu. Perceptive Automation also has a helpful user forum on its Web site (which you can access at find.macworld.com/0051), where you can post questions and read tips.

JOHN RIZZO is a former editor at *MacUser* who now writes for CNET. SCOTT KNASTER is the author of *Hacking iPod + iTunes* (Wiley Publishing, 2004).

Mac OS X Hints

Find out how to use Exposé to work on a single window, modify tab behavior on Web forms in Mozilla and Firefox, use Terminal to test for corrupted preference files, disable certain iChat AV emoticons, and route Terminal Unix command output to TextEdit.

Use Exposé to Work on One Window at a Time

Do you routinely have lots of applications running with dozens of open windows? Ever have trouble focusing on the task at hand due to the plethora of background windows covering your screen? Or do you just miss seeing your desktop picture occasionally? If so, try this method of window isolation, courtesy of Exposé.

First, activate the specific window you'd like to work in, and minimize it to the Dock. Next, press F11 to activate Exposé's Desktop mode. You're now staring at an empty screen, ready for the final step: click on the window you minimized to the Dock. The window will expand from the Dock, but nothing else will come with

it—not even if you have other windows that belong to that same application. You now have a single-window focused view, with the rest of your windows hiding nicely off the edges of the screen. When you want all those windows back, just press F11 again.

Test for Corrupted Preference Files

Although OS X is a rock-solid operating system, applications may still crash for seemingly random reasons. One prevalent cause of application instability is a corrupted preference file—if an application can't read its preferences, or reads bad information, it may decide that crashing is the easy way out of its troubles.

Most OS X application preference files are stored in XML format, which makes it relatively easy to tell

Disable Certain iChat AV Emoticons

Emoticons are those cute little faces you use in iChat AV to add emotion to otherwise boring text-only conversations. Although they're quite useful, sometimes they get in the way—try sending someone a lettered list, such as "A) Do the first task, B) Do the next task," and you'll find that your "B)" gets replaced by a sunglasses-wearing smiley face. Here's how to stop that from happening.

Quit iChat AV, and then go to System: Library: PrivateFrameworks: InstantMessage.framework:

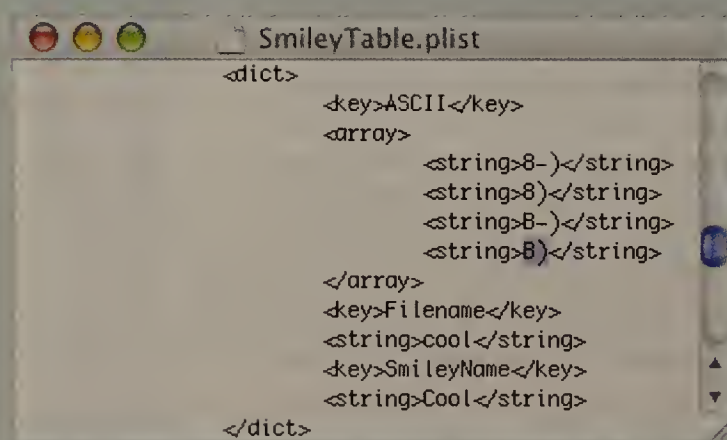
Versions: A: Resources. Highlight the English.lproj folder inside and select File: Get Info. Click on the triangle next to the Ownership & Permissions section, and then click on the lock icon next to the Owner pop-up menu (to see the menu, you may need to click on the triangle next to Details). You'll now be able to click on the Owner pop-up menu. Change its setting from System to your user name (enter your password if asked). Leave this window open; you'll use it again later.

Back in the Finder, open the English.lproj folder, select the SmileyTable.plist file, and press ⌘-D to duplicate the file (as a backup). Now drag and drop SmileyTable.plist onto your favorite pure text editor, such as TextEdit or Bare Bones Software's BBEdit.

If you're using TextEdit, press ⌘-F for Find, type B), and press enter; TextEdit will jump to the section of the file that controls that emoticon's shortcut (see "Say Cheese"). The

<array> section contains the various keyboard combinations that will create the shortcut named Cool; as you can see, there are four, including the troublesome B). Delete the entire line that contains the B) entry, and save the file. TextEdit may warn you that you're trying to modify a write-protected file, but it will also provide an Overwrite button in that dialog box, so you can save the file. Quit TextEdit and return to the Get Info window you left open. Click on the Owner pop-up menu again and set the Owner back to System (provide your password when asked). Click on the lock icon to lock everything up again, and close the window.

Restart iChat AV, and you should find that you can now send your lettered list to anyone you want; even though the smiley is still defined in the recipient's smiley table, it won't be sent, because it hasn't been converted on your Mac. You can do the same with any of the emoticon shortcuts by finding and deleting them from the same SmileyTable.plist file. If you ever want to go back, just delete the altered .plist file, and rename the duplicate by deleting the word copy from its name.



Say Cheese Emoticons are useful for conveying emotion, but sometimes they get in the way. You can block those you don't want with a little change to the SmileyTable.plist file.

when a file has been corrupted—if the structure of the file doesn't meet XML standards, then it's most likely corrupted.

Recently we told you about an app, called Preferential Treatment (🔗; *Mac Gems*, August 2004), that can check your preferences. But if you'd like to run the commands yourself, launch Terminal and type `sudo plutil ~/Library/Preferences/*.plist` (to check preferences in your user directory) or `sudo plutil /Library/Preferences/*.plist` (to check preferences at the root level), type your password when prompted, and press enter. The `plutil` program will test each `.plist` preference file (files ending with `.plist` are supposed to be XML files) and report any errors it finds. If each `.plist` file listed is followed by the word *OK*, everything is fine. If Terminal displays any errors, you may want to move the suspected preference file to the desktop and then relaunch the associated application so it can create a new preference file.

Tab to All Fields in Mozilla and Firefox Forms

Although Safari is now the dominant browser for OS X users, there are a number of excellent alternatives. Two of the best are Mozilla and Firefox (both available at www.mozilla.org), which offer greater customization and control over your Web-browsing experience than Safari does. However, the first time you use one of these browsers on a Web form, you'll probably be surprised to find that using the tab key doesn't take you to every field and pop-up menu on the form—so you must reach for the mouse to handle the pop-up menus. Especially on long forms, this can be a real waste of time, as you move from mouse to keyboard and back again. Luckily, there's an easy (albeit somewhat obscure) way to change this tab behavior on forms.

Launch either browser, and type `about:config` into the URL bar. When you press return, you'll see a long list of odd-looking names and values (see "Power Tabbing"). These are various user-controllable preferences, the majority of which are not accessible via the programs' preferences. The `accessibility.tabfocus` variable is the one you need to modify. Double-click on that row, and a small dialog box will appear, showing the variable's name and a text-input line. Select the input line and type 7; then click on OK. You should see your new value reflected on the `about:config` page.

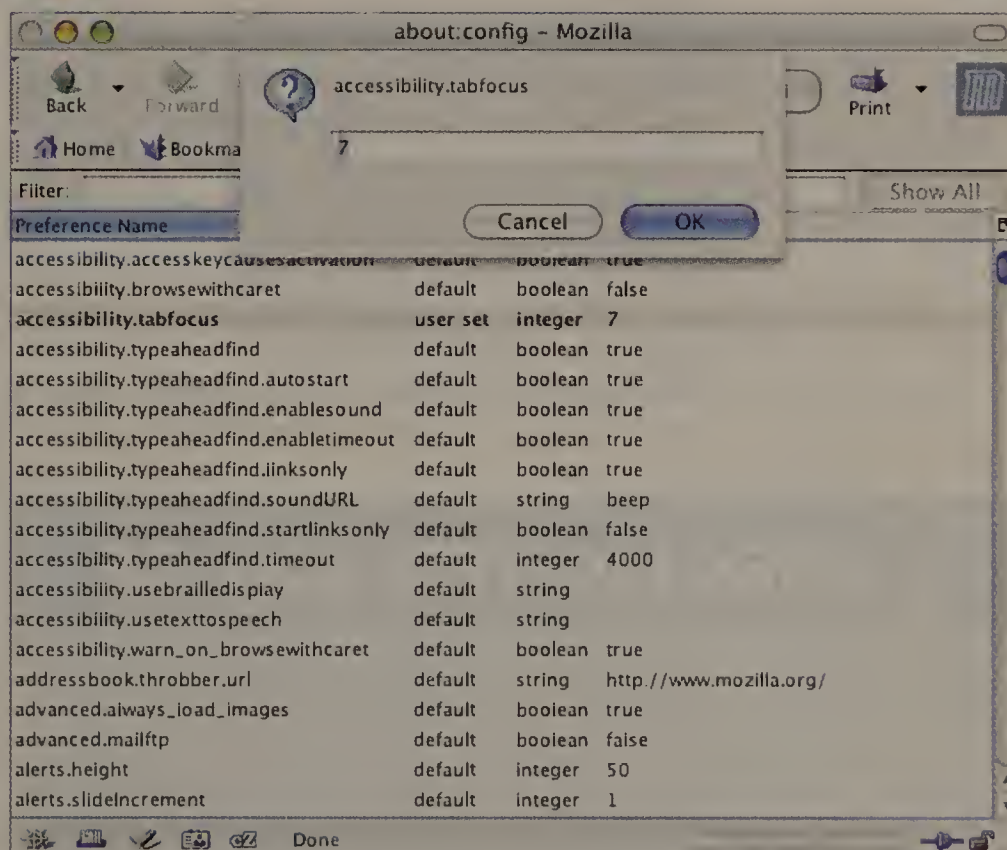
So what did you just do? The default value of 1 means "tab to just text controls," while 7 means "tab to text controls, other form elements, and links." From now on, the tab key will select everything on a form, along with any hyperlinks on the page. If you'd rather not also select the links with the tab key, change the 7 to a 3, which means "tab to text controls and other form elements only."

Send Terminal Output to TextEdit

Have you ever wanted to get the result of a Unix command (`ls -al`, for instance) into a TextEdit document for further editing? The standard Unix solution is to use the redirect symbol (`>`) to send the output from the command into a file (`ls -al > /Users/username/somefile.txt`), and then open that file with TextEdit. The OS X Unix system, though, includes a handy shortcut: the `open -f` command. The `-f` flag tells Terminal to take whatever data was passed to the `open` command and display it in a new TextEdit document.

So to get a listing of your Home directory, open a new Terminal window (which guarantees that you'll be in your Home directory), and type `ls -al | open -f`. The vertical bar is the pipe symbol, and it tells Unix to send the output of the command on the left of the pipe to the command on the right of the pipe. When the command finishes running, TextEdit will open and display the files in the top level of your Home directory.

If you want to see everything in every folder in your Home folder, use the previous command, but change `ls -al` to `ls -alR`. The `R` at the end means "recursive"; it will force the `ls` command to navigate into all the subfolders in your Home directory and list their contents. Depending on the size of your directory, this can take quite a while to run. But when it's done, you'll have a new TextEdit document showing the file name, date, size, and ownership of every single file and folder in your Home directory. You aren't restricted to using `ls`, of course; you can route the output of any command into TextEdit by using the pipe symbol and `open -f`.



How can you learn more about these variables, their effects, and their various possible values? There aren't any definitive references on the Web, but a good starting point is the Other Useful Preferences section of the Customizing Mozilla page: www.mozilla.org/unix/customizing.html#prefs.

From there, if you're still interested in learning more, you might try doing a Web search for the term *mozilla prefs*.

Power Tabbing

When you enter `about:config` in Mozilla or Firefox, you get access to hidden variables, such as this one for changing tab behavior.

Contributing Editor ROB GRIFFITHS is the author of *Panther Power User* (O'Reilly, 2004) and runs the Mac OS X Hints Web site (www.macosxhints.com).

Mac 911

This *Mac 911* tackles the five *Ws* of journalism: *Who* needs to be concerned about the size of an OS X installation? *What* can you do to edit the images and fonts within PDF files “printed” from Safari? *When* is it appropriate to install Panther while upgrading the processor in an older Mac? *Where* can you learn about foreign file extensions? And *why* can’t iTunes identify duplicate songs? It’s all the Mac news that’s fit to print.

Slimmer Installation

What is the minimum amount of disk space required to install Mac OS X?

G.W. “Bill” Sparks III

A full-blown installation of OS X can consume more than 3GB of hard-drive space. By judiciously using the installer’s Custom Install feature, you can install Panther and use just less than 925MB of space. To tweak what you install, run the installer and, when the Easy Install On *Name_of_Drive* screen appears, click on the Customize button. In the Custom Install screen, you can deselect BSD Subsystem, Additional Applications (this includes Microsoft Internet Explorer; StuffIt Expander; and Apple’s iTunes, iMovie, iPhoto, iCal, and iSync), Printer Drivers, Additional Speech Voices, Fonts, and Language Translations.

Most people can safely do without Printer Drivers, Additional Speech Voices, Fonts, and Language Trans-

lations. Although your Mac will boot without BSD Subsystem, failing to install it means you won’t be able to use Terminal, FTP, or Secure Shell (SSH)—a scheme necessary for securely accessing a computer on a network or over the Internet. I’d keep BSD Subsystem. Likewise, your Mac won’t be much fun without Apple’s applications. You’re welcome to disable Internet Explorer, since Apple provides its own browser, Safari. An installation that includes BSD Subsystem and Additional Applications takes up about 1.5GB.

Portable Document Foibles

I like to save Web pages as PDFs via Safari. Can I change how the Save As PDF command in a Print dialog box works, to better control images and fonts? And how do I include the page title and URL in a Save As PDF document “printed” from Safari?

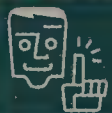
John Sullivan

The Save As PDF command essentially takes a picture of the document and turns it into a PDF file, so if you want to control fonts and images, you have to muck with them at the source. For example, you might decrease the size of the displayed font in Safari (⌘-minus sign [–]) or instruct the host application to not display images. If you just want to cram more information on a virtual page, you can change the paper-size setting to something larger—Tabloid or Tabloid Extra, for example—in the Page Setup dialog box.

It’s impossible to include page titles and URLs in PDF documents generated by Safari. When I’m faced with such a situation, I create a TextEdit document of the Web page. To do so, click somewhere on the page, press ⌘-A to select its contents, and choose Safari: Services: TextEdit: New Window Containing Selection. The resulting TextEdit document contains your selection’s live links (but you’ll lose some images, most formatting, and all backgrounds). To return to this page in Safari, simply seek out a Home link and click on it.

In Order to Upgrade

I plan to upgrade my 400MHz Power Mac G4 with a faster processor, a SuperDrive, additional memory, and Panther.



UNSOLICITED ADVICE

Microsoft Word: The Right Way

If you want to get my goat, just sit down in front of a copy of any OS X-compatible version of Microsoft Word and do things the old-fashioned way—magnify the size of your document with the Standard toolbar’s Zoom tool, copy and paste paragraphs to shift their location, and navigate through a document with nothing but the scroll bar. To stay in my good graces, try these tips instead:

While using a mouse with a scroll wheel, hold down the control key and scroll the wheel up to zoom in on, or scroll down to zoom out of, a Word document.

To easily shift paragraphs up or down in Word, click anywhere in the paragraph you want to move and, while holding down the shift and control keys, press your Mac’s up- or down-arrow keys.

If you’re like me, you’ve ignored the little clear button that appears between the double-arrow icons at the bottom of a Word document’s vertical scroll bar. It’s time to pay attention. Click on this button, and you’ll discover that you can change the behavior of the buttons that, by default, send you to the previous or next page. For example, you can change these buttons so that each click moves you to the previous or next comment or edit.



TIP OF THE MONTH

Should I do this in a particular order? Are there any other things I should watch out for?

Gene D. Bennett

I'd perform the upgrades in this order: processor, Panther, RAM, and then SuperDrive. Here's my rationale:

The processor upgrade is first because if your Mac works well before a processor upgrade and misbehaves afterward, you know exactly where the trouble lies.

The SuperDrive I'm going to recommend works best with OS X 10.3.3, so you should put Panther on your Mac before adding the drive.

A few people who have installed Panther on their Macs have discovered that RAM that doesn't meet Apple specifications can cause problems with the installation, but once Panther is installed, the Mac doesn't object to this RAM.

OS X 10.3.3 and later versions recognize the Pioneer DVR-107D (Pioneer's latest "SuperDrive"), so you don't need to update the drive's firmware for it to work.

But if your processor upgrade includes jumpers or switches for adjusting its speed, you may discover that the top advertised speed makes your Mac unstable. If this is the case, adjust your new processor to run a notch or two slower.

Also note that Apple's Final Cut Pro may refuse to run because it doesn't recognize the speed of your new processor. Sonnet provides a fix for this in the form of its Sonnet X Tune-Up utility (find.macworld.com/0034), and Other World Computing has a technical note that explains how to work around the problem (find.macworld.com/0035).

Extend Your Reach

I've received documents with a .max extension. I can't open the files. What application are these files associated with?

Patrick Flynn

When I run into an exasperating extension, I turn to The File Extension Source (<http://filext.com>). This site lets you search an index with common (and uncommon) file extensions, as well as links to Web sites associated with those extensions. For example, I discovered that your .max files were likely generated by ScanSoft's PaperPort (www.scansoft.com), scanning software that is no longer made for the Mac. The File Extension Source includes a link to ScanSoft's site, where you can find a free PaperPort viewer application, which, regrettably, runs only in OS X's Classic environment.

Double Trouble

After I transferred songs in my iTunes library to another computer, there were a lot of duplicates—03 Saturn Girl.mp3, 03 Saturn Girl.m4a, 02 I Am So Ordinary.mp3, and

Share One Internet Connection

After a recent office move, one desktop Mac was temporarily without an Internet connection while we waited for our local Mac dealer to receive a shipment of AirPort cards. To connect this desktop Mac to the Internet, all we had to do was connect an AirPort-enabled PowerBook to it using IP Over FireWire.

First, connect the two computers with a FireWire cable. On each Mac, open the Network preference pane, choose Network Port Configurations from the Show pop-up menu, click on New, and select Built-In FireWire from the Port menu. Give the configuration a name, such as FireWire, and click on OK.

On the AirPort-enabled Mac, go to the Sharing preference pane and click on the Internet tab. In the list of Ports to share your connection with, select Built-In FireWire, and then choose AirPort from the Share Your Connection From pop-up menu.

When you click on Start to begin sharing the connection, the AirPort-enabled Mac will assign an IP address to the other Mac using its internal DHCP server; then, after a couple of seconds, the connection should activate.

[This scheme also works with a Mac connected to the Internet via an Ethernet connection.—Ed.]

AJ Kandy

Source	Song Name	Time	Artist	Album
Dupes	1 You Can't Do That	2:37	The Beatles	A Hard Day's Night
Get Back	2 You Can't Do That	2:37	The Beatles	A Hard Day's Night
Greensleeves	3 Something	3:03	The Beatles	Abbey Road
iTrip Stations	4 Something	3:03	The Beatles	Abbey Road
Jayhawks Favorites	5 Maxwell's Silver Hammer	3:27	The Beatles	Abbey Road
Jumpin' Jive	6 Maxwell's Silver Hammer	3:27	The Beatles	Abbey Road
LAME Import	7 Oh! Darling	3:26	The Beatles	Abbey Road
Last Salling Clicker A	8 Oh! Darling	3:26	The Beatles	Abbey Road
Mapp and Lucia	9 Octopus's Garden	2:51	The Beatles	Abbey Road
mini me Selection	10 Octopus's Garden	2:51	The Beatles	Abbey Road
mini me Selection	11 Octopus's Garden	2:51	The Beatles	Abbey Road
mini me Selection	12 Speech: John	0:10	The Beatles	Anthology 1 (Disc 1)
MP3 Library	13 Speech: Brian Epstein	0:18	The Beatles	Anthology 1 (Disc 1)
Norah Jones	14 Speech: Brian Epstein	0:32	The Beatles	Anthology 1 (Disc 1)
North	15 Speech: John	0:12	The Beatles	Anthology 1 (Disc 1)
On-The-Go 1	16 Yesterday	2:33	The Beatles	Anthology 2 (Disc 1)

02 I Am So Ordinary.m4a, for example. What happened, and how do I eliminate duplicate songs?

Kevin Knight

Though it seems that your Mac just can't get enough Paula Cole, this isn't the case. iTunes considers song files ripped multiple times with different encoders—MP3 (.mp3) and unprotected AAC (.m4a), in this case—to be distinct files. I'm guessing that you either ripped Paula Cole's *Harbinger* twice—once with iTunes' MP3 encoder and again with its AAC encoder—or selected the album and converted it from one format to another with the Convert command (found in the Advanced menu).

To cull duplicate tunes, try Doug Adams's free Corral All Dupes AppleScript (www.malcolmadams.com/itunes). This script—which works *very* slowly on large iTunes libraries—searches for songs with the same name, artist, and album, and places them in a new Dupes playlist (see "Don't Be Duped"). Then you can determine which of the duplicates to keep. You may, for example, want to keep the AAC versions of your songs and delete their MP3 counterparts.

Don't Be Duped

Doug Adams's Corral All Dupes AppleScript helps you locate duplicate files in your iTunes library.

Contributing Editor CHRISTOPHER BREEN is the author of *Secrets of the iPod*, fifth edition (Peachpit Press, 2004).



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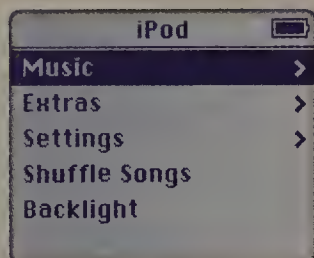
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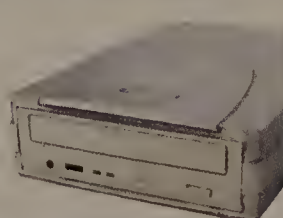
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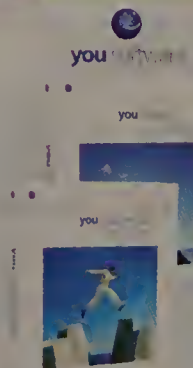
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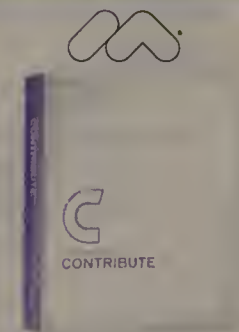
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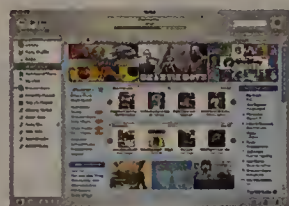
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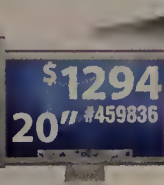
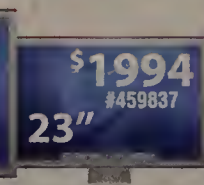
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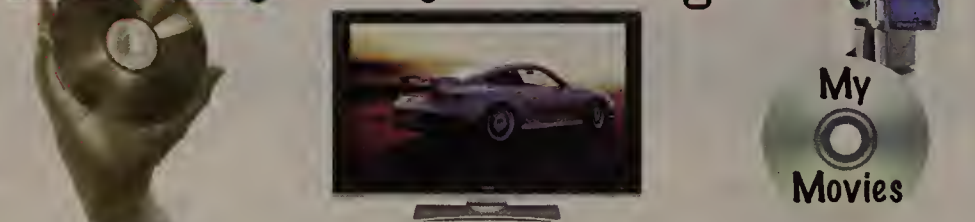
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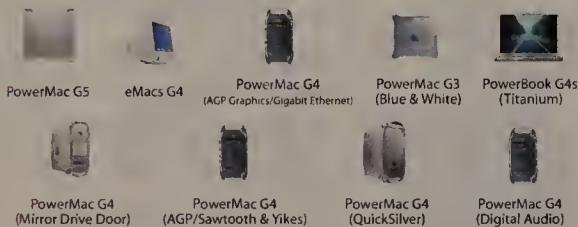
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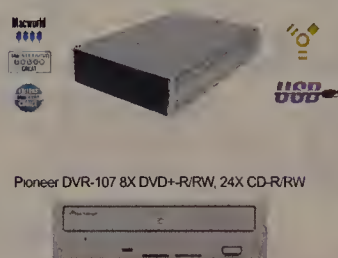
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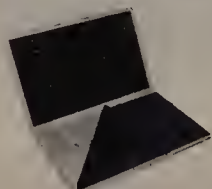
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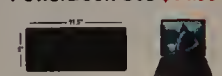
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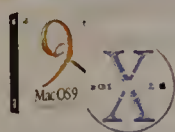
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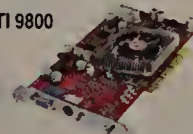
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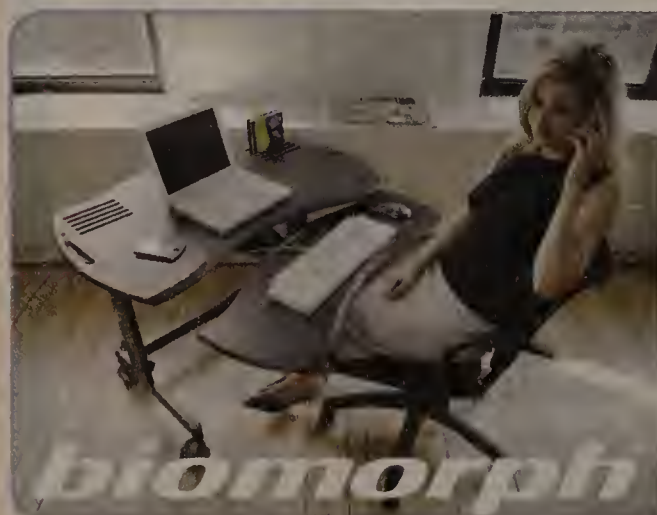


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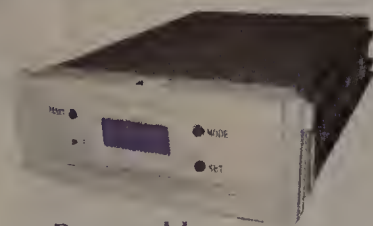
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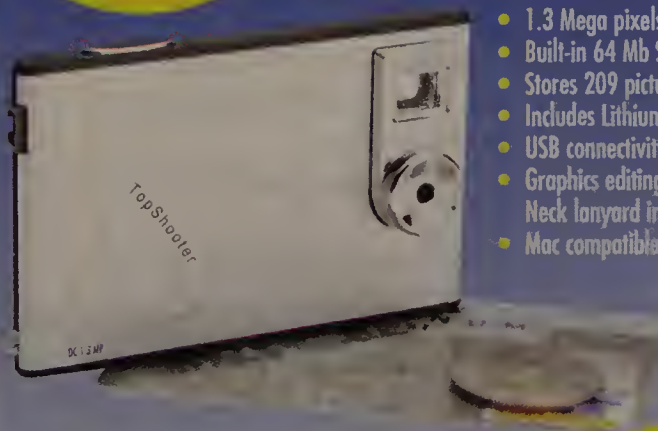


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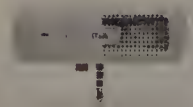


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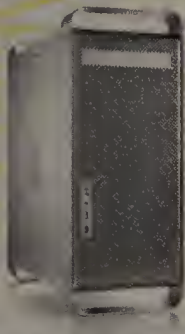
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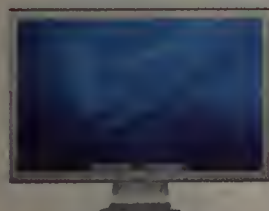
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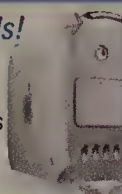
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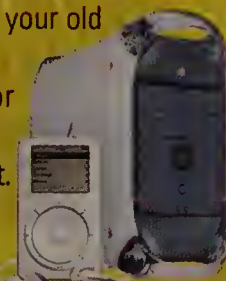


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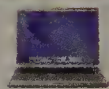
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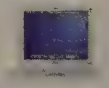
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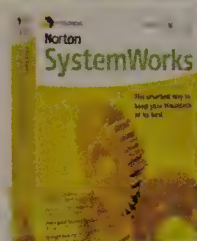
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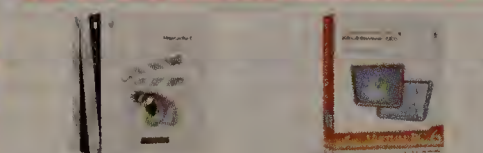


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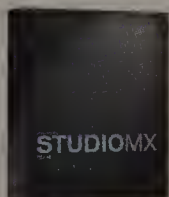
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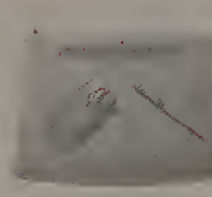
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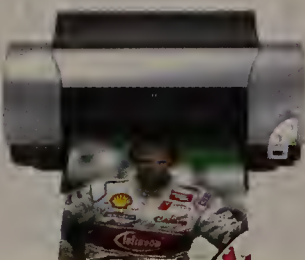
DUAL LICENSING

QuarkXPress 6 users haven't had too many kind things to say about the licensing policies for the desktop publishing application (as *Macworld* reported in "Activation Nation" [*Mac Beat*, June 2004]). But Quark has responded to some of the complaints—it's altering its single-user license so QuarkXPress 6 users can install and activate the program on a second computer at no additional charge. (Existing Quark Mobile Licensing customers can request a coupon toward the purchase of Quark software or services.) That should produce a little goodwill for Quark; more important, it helps designers who use a desktop in the office and a laptop on the road produce a lot more work (www.quark.com).

i9900 Photo Printer ▼

The photo-printing landscape just got more colorful, thanks to Canon's latest offering, which handles borderless printing at up to 13 by 19 inches. The \$500 i9900 adds red and green inks to the standard six-color ink set, and each ink is housed in an individual tank.

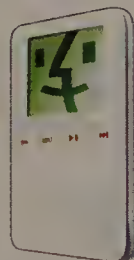
A tiny droplet size—2 picoliters—lets the i9900 produce beautiful photographic prints that are free of grain, and the device



prints fast, so you have plenty of time to appreciate the color of your images (www.usa.canon.com).

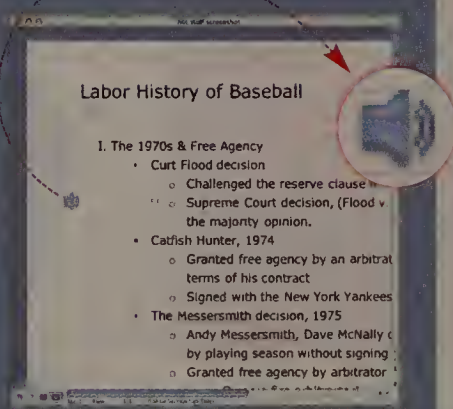
Pod2Go ►

Lately, Apple's been stingy about adding PDA-like features to the iPod. Fortunately, third-party developers like Kevin Wojniak are up to the challenge. Wojniak's free Pod2Go application makes downloading movie listings, RSS feeds, stock quotes, weather forecasts, horoscopes, and driving directions onto your iPod as easy as transferring a playlist (www.kainjow.com/pod2go).



WORD 2004'S NOTEBOOK LAYOUT VIEW

It's not easy giving a new look to a program that's been around for nearly as long as the Mac. But if you've used Microsoft Word 2004, you've likely noticed the new Notebook Layout view. The new view adds more than just a different look to Word—it also makes note-taking and outlining a snap. And its ability to embed audio in documents makes this feature worth keeping around until Word is celebrating its 40th anniversary alongside the Mac (www.microsoft.com/mac).



A CLOSER LOOK:

MAYA UNLIMITED

Once you've developed for the Mac, you never go back. Just ask 3-D-animation specialist Alias, which is following its 2001 Mac debut of Maya Complete by releasing a Mac version of the more feature-rich Maya Unlimited. (Mac users accounted for 25 percent of Maya Complete's sales, which probably had something to do with that.) The \$6,999 Maya Unlimited is the second Alias product to hit the platform in 2004—SketchBook Pro, a \$179 sketching and annotation program for pen-based tablets, is already wowing Mac graphics professionals (www.alias.com).

WHAT'S HOT A Quick Look at the World of Macs

- 1 Steve Jobs calls up the student who won Apple's 100 millionth song contest. At the same time, the RIAA places a congratulatory phone call to the 100 millionth recipient of one of its cease and desist orders.
- 2 Apple introduces Click Wheel iPods. Crazy by the success of the iPod's new interface, the company declares that all future Power Macs will be operated with Click Wheels, too.
- 3 Motorola and Apple will team up to make a cell phone that includes iTunes software. Soon, all of your friends' terrible tastes in music will be just a phone call away (plus roaming charges where applicable).
- 4 The Worldwide Newton Association (WNA) names former Apple CEO John Sculley as its honorary president. Coincidentally, the WNA members were named honorary presidents of the Just Let It Go Already Society.



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*When used with Nikon D70 in large image setting, 20mm or 35mm, SanDisk® SD card 256 MB Ultra II CompactFlash™ card. ©2004 Nikon Inc.

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